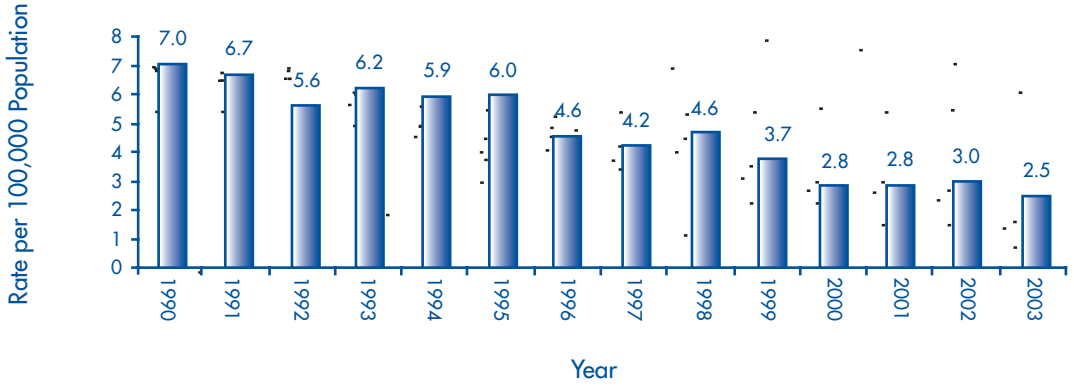
Child Deaths
IN MICHIGAN
section six

HOMICIDES

Overview of Child Homicides, Ages 0-18

Figure 41
Michigan Child Homicide Rates, Ages 0-18, 1990-2003

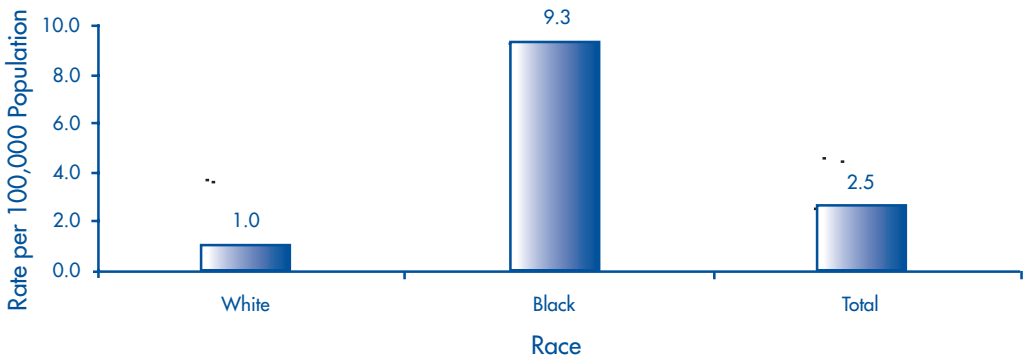


Note: The rate of 3.0 in 2002 represents 80 deaths; the 2.5 in 2003 represents 67 deaths.

Table 57
Number and Percent of Michigan Child Homicides by Sex and Age

Sex and Age Group	2002		2003	
	Number	Percent	Number	Percent
Male	52	65.0	41	61.2
Under One Year	5	6.3	3	4.5
1 to 4 Years	10	12.5	8	11.9
5 to 9 Years	0	0.0	2	3.0
10 to 14 Years	6	7.5	3	4.5
15 to 18 Years	31	38.8	25	37.3
Female	28	35.0	26	38.8
Under One Year	5	6.3	4	6.0
1 to 4 Years	5	6.3	5	7.5
5 to 9 Years	5	6.3	3	4.5
10 to 14 Years	3	3.8	4	6.0
15 to 18 Years	10	12.5	10	14.9
Total	**80**	**100.0**	**67**	**100.0**

Figure 42
Michigan Child Homicide Rates by Race, Ages 0-18, 2003



Homicide – Firearm and Weapon

Background

Most victims of firearm and other weapon homicides in the U.S. are adolescents. It is the number one cause of violence-related injury death for youths ages 15 and over. Over the last decade, an average of about nine American youths were killed daily. In 2003, the Youth Risk Behavior Surveillance Survey reported that about 17% of 9th through 12th grade students indicated that they had carried a firearm within the previous 30 days for self-defense or to settle disputes. The prevalence of having carried a weapon was about four times higher for males than for females.

Nationally, homicide is the second leading cause of death among young people ages 15 to 19. Youth homicide is a serious problem in large urban areas, especially among black males. Homicide is the number one cause of death for black teens. Yet when socio-economic status is held constant, differences in homicide rates by race become insignificant. Major contributing factors in addition to poverty include easy access to handguns, involvement in drug and gang activity, family disruption and school failure. These homicides usually occur in connection with an argument or dispute. They are almost always committed by acquaintances of the same gender, race and age, using inexpensive, easily acquired handguns.

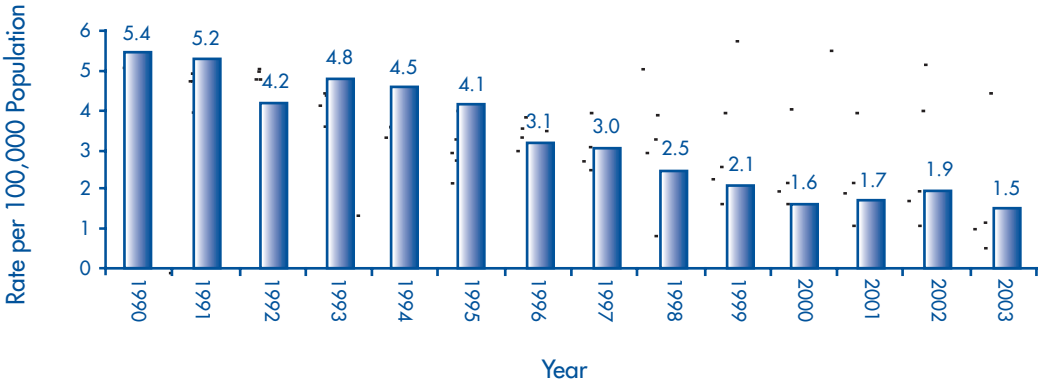
There are a myriad of prevention strategies available to communities to reduce gun violence among youth. Many of these make sense and are easy to implement. However, research indicates that preventing youth violence requires complex, long-term solutions that should be focused in targeted neighborhoods where the majority of these homicides occur. Violence prevention research has demonstrated that strategies are most effective when they identify high-risk children in their earliest years and intervene at multiple levels through collaborative community partnerships.

Major Risk Factors

- Easy availability of and access to firearms
- Youths living in neighborhoods with high rates of poverty, social isolation and family violence
- Youths active in drug and gang activity, with prior histories of early school failure, delinquency and violence
- Youths with little or no adult supervision
- Prior witnessing of violence

Michigan Mortality Data from Death Certificates

Figure 43
Michigan Child Homicide Rates Due to Firearms and Weapons, Ages 0-18, 1990-2003

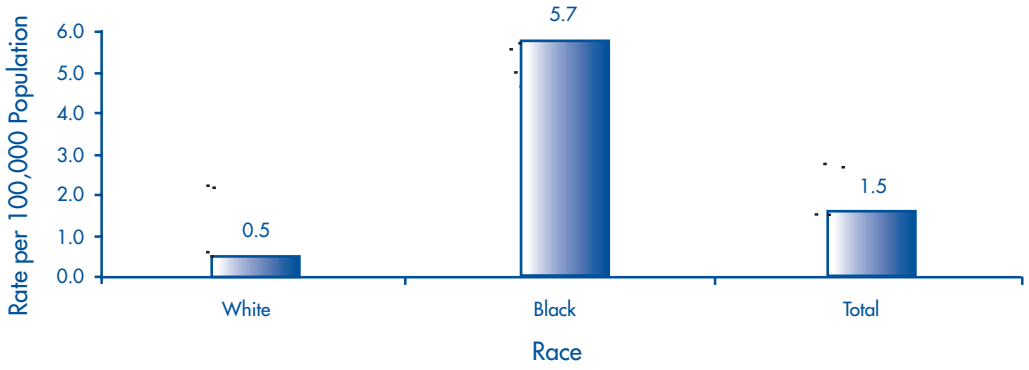


Note: The rate of 1.9 in 2002 represents 52 deaths; the 1.5 in 2003 represents 40 deaths.

Table 58
Number and Percent of Michigan Child Homicides Due to Firearms and Weapons by Sex and Age

Sex and Age Group	2002		2003	
	Number	Percent	Number	Percent
Male	35	67.3	29	72.5
Under One Year	0	0.0	0	0.0
1 to 4 Years	1	1.9	1	2.5
5 to 9 Years	0	0.0	2	5.0
10 to 14 Years	6	11.5	2	5.0
15 to 18 Years	28	53.8	24	60.0
Female	17	32.7	11	27.5
Under One Year	0	0.0	0	0.0
1 to 4 Years	3	5.8	1	2.5
5 to 9 Years	5	9.6	1	2.5
10 to 14 Years	1	1.9	2	5.0
15 to 18 Years	8	15.4	7	17.5
Total	**52**	**100.0**	**40**	**100.0**

Figure 44
Michigan Child Homicide Rates Due to Firearms and Weapons by Race, Ages 0-18, 2003



Child Death Review Team Findings from CDR Case Reports

CDR teams reviewed a total of 76 child deaths in 2002 and 2003 ruled to be homicides from firearms or other weapons. Sixty-five percent of these deaths reviewed were to children between the ages of 15 and 18. Seventy-one percent of the deaths were to black children. Approximately three quarters of the deaths were to children who were deemed to be of low socio-economic status.

Table 59
Number and Percent of Child Homicides from Weapons Reviewed by Sex and Age

Sex and Age Group	2002		2003	
	Number	Percent	Number	Percent
Male	16	55.2	34	72.3
Under One Year	0	0.0	0	0.0
1 to 4 Years	2	6.9	2	4.4
5 to 9 Years	1	3.4	1	2.2
10 to 14 Years	4	13.8	2	4.4
15 to 18 Years	9	31.0	29	61.7
Female	13	44.8	13	27.7
Under One Year	0	0.0	0	0.0
1 to 4 Years	3	10.3	1	2.2
5 to 9 Years	2	6.9	4	8.9
10 to 14 Years	1	3.4	2	4.4
15 to 18 Years	7	24.1	4	8.9
19 Years and Older	0	0.0	2	4.4
Total	**29**	**100.0**	**47**	**100.0**

Records show that CPS had previously been involved with the child and/or family in 35 of the 76 deaths. When known, a handgun was the weapon used approximately two-thirds of the time.

Table 60
Number and Percent of Child Homicides from Weapons Reviewed by Type of Weapon

Type of Weapon	2002		2003	
	Number	Percent	Number	Percent
Handgun	21	72.4	28	59.6
Rifle	1	3.4	1	2.1
Shotgun	2	6.9	2	4.3
Muzzleloader	0	0.0	1	2.1
Unknown Firearm	1	3.4	7	14.9
Knife	3	10.3	6	12.8
Unknown Sharp	0	0.0	1	2.1
Blunt Force	0	0.0	1	2.1
Unknown Weapon	1	3.4	0	0.0
Total	**29**	**100.0**	**47**	**100.0**

Table 61
Number and Percent of Child Homicides from Weapons Reviewed by Person Who Inflicted the Injury

Relationship	2002		2003	
	Number	Percent	Number	Percent
Parent	6	20.7	6	12.8
Parent's Partner	1	3.4	1	2.1
Sibling	1	3.4	2	4.3
Acquaintance	11	37.9	11	23.4
Friend	6	20.7	6	12.8
Stranger	1	3.4	11	23.8
Police Officer	0	0.0	2	4.3
Unknown	3	10.3	8	17.0
Total	**29**	**100.0**	**47**	**100.0**

Ten (four sibling groups) of the 76 child homicides due to firearms or weapons were reported by MDHS to NCANDS as being due to child abuse or neglect. The mother was the perpetrator in two of the sibling-group deaths, fatally shooting the children and then shooting herself. In the other two events, the father was the perpetrator and was arrested and charged with murder.

The teams concluded that firearm and other weapon homicides were probably or definitely preventable 80% of the time.

Local Initiatives to Prevent Child Deaths

Teams proposed 20 firearm homicide prevention activities, initiating action on 16 of the proposals:

Iron County - Team contacted local schools about providing domestic violence education to the girls.

Midland County – Team initiated a gun-lock giveaway, secured a gun safety video tape for middle school students, involved the media (newspaper and television) in highlighting gun safety, and hung posters about the ASK program.

Wayne County - Team identified five prevention initiatives: Conflict and anger resolution activities in the school; educating women about domestic violence, firearm safety and youth violence prevention in the media; and the initiation of a community safety project by Law Enforcement.

Recommendations for Policymakers

1. The Michigan State Police: Spearhead an initiative to partner with communities and local law enforcement experiencing high rates of teen homicides, to identify the neighborhoods most at risk for gun homicides, and implement comprehensive violence-prevention initiatives.

2. Michigan Courts: Support enforcement of laws that require gun safety mechanisms on all firearms at the point of sale.

3. The Michigan Department of Community Health and the Michigan Department of Human Services: Work with local Community Mental Health to recognize and ensure treatment for the mental health needs of families.

4. The Michigan Department of Community Health: Partner with the Michigan Chapter of the American Academy of Pediatrics to disseminate and implement the AAP's Violent Injury Prevention Program (VIPP) in primary care offices around the state.

Recommendations for Parents and Caregivers

- If you own guns, they should be properly stored. Keep them in locked cabinets with gun safety devices in place. Store ammunition in a separate locked cabinet.
- Assess the safety of firearms storage of the homes that your children visit.
- Be knowledgeable about your child's activities when they are with friends.
- Recognize and seek professional help if your child displays violent behavior.

Homicide – Child Abuse and Neglect

Background

In 2002, NCANDS reported that child maltreatment fatalities were most often the result of neglect (38%) followed by physical abuse (30%) and then combinations of maltreatment types (29%).

In cases of fatal neglect, the child's death usually results from a caregiver's failure to act. The neglect may be chronic, such as extended malnourishment, or acute, such as an infant who drowns because she is left unsupervised in the bathtub.

Many child maltreatment deaths from physical abuse involve children receiving injuries to their heads. Known as abusive head trauma, these injuries occur when a child's head is slammed against a surface, is severely struck or when a child is violently shaken. There have been major improvements in the ability to diagnose abusive head trauma and in investigators' abilities to recognize when a caregiver's explanation does not match the severity of the injuries. For example, it is now widely accepted that falls from short heights or a child being accidentally dropped do not cause extensive, severe head injuries.

The next most common causes of physical abuse fatality are punches or kicks to the abdomen, leading to internal bleeding. Other forms of fatal physical abuse include immersion in hot water (scalding), drowning and smothering.

The reason most often given by caretakers who fatally injure their children is that they lost patience when the child would not stop crying. Other common reasons given by the abusers include toilet training issues, fussy eating and disobedient behavior.

Young children are the most vulnerable victims. National statistics show that children under seven years of age account for 88% of all maltreatment deaths. Of those deaths, roughly half were to children under the age of one with males accounting for 61% of these infant fatalities. Michigan's numbers are similar: for the maltreatment deaths reported to NCANDS in 2002, 90% of victims were under age seven, 60% of those were under age one and 46% of those infant victims were male.

Nationally, fathers and mothers' boyfriends are most often the perpetrators in the physical abuse deaths; mothers are more often at fault in the neglect fatalities. In 2002, one or both parents were involved in 79% of child abuse or neglect fatalities. Fatal abuse is often interrelated with poverty, domestic violence and substance abuse. A study by the National Center on Addiction and Substance Abuse found that children of substance-abusing parents were almost three times more likely to be abused and more than four times more likely to be neglected than children of parents who are not substance abusers. Other contributing factors include the immaturity of parents, lack of parenting skills, unrealistic expectations about children's behavior and capabilities and social isolation.

National studies report that it is difficult to predict a fatal abuse event. In the U.S., the majority of child victims and their perpetrators had no prior contact with CPS at the time of the death, yet many children had previous injuries that were not reported.

Major Risk Factors

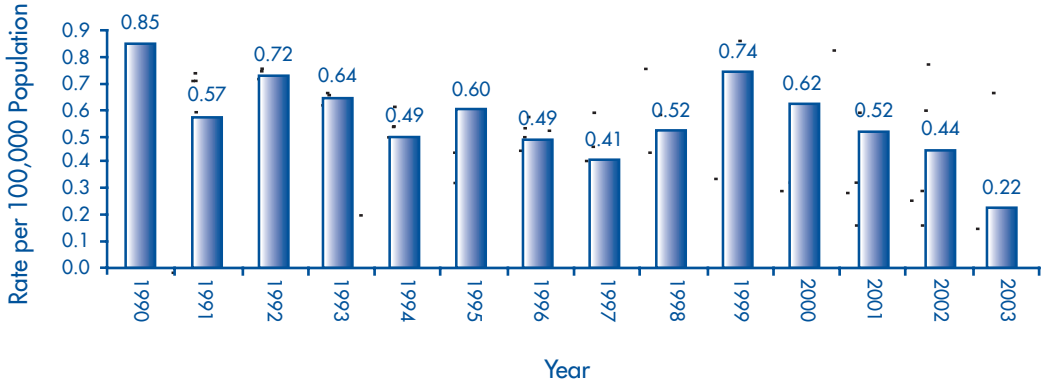
- Younger children, especially under the age of five
- Parents or caregivers who are under the age of 30
- Low income, single-parent families experiencing major stresses
- Children left with male caregivers who lack emotional attachment to the child
- Children with emotional and health problems
- Lack of suitable child care

- Substance abuse among caregivers
- Parents and caregivers with unrealistic expectations of child development and behavior

Michigan Mortality Data from Death Certificates

In Michigan as well as nationally, the actual number of child abuse and neglect deaths is estimated to be much higher than what is reported by death certificate data.

Figure 45
Michigan Child Homicide Rates Due to Abuse and Neglect, Ages 0-18, 1990-2003



Note: The rate of 0.44 in 2002 represents 12 deaths; the 0.22 in 2003 represents 6 deaths.

Table 62
Number and Percent of Michigan Child Homicides Due to Child Abuse and Neglect by Sex and Age

Sex and Age Group	2002		2003	
	Number	Percent	Number	Percent
Male	10	83.3	2	33.3
Under One Year	4	33.3	1	16.7
1 to 4 Years	6	50.0	1	16.7
5 to 9 Years	0	0.0	0	0.0
10 to 14 Years	0	0.0	0	0.0
15 to 18 Years	0	0.0	0	0.0
Female	2	16.7	4	66.7
Under One Year	1	8.3	2	33.3
1 to 4 Years	1	8.3	2	33.3
5 to 9 Years	0	0.0	0	0.0
10 to 14 Years	0	0.0	0	0.0
15 to 18 Years	0	0.0	0	0.0
Total	**12**	**100.0**	**6**	**100.0**

Child Death Review Team Findings from CDR Case Reports

In 2002 and 2003, CDR teams reviewed 42 cases of child abuse and neglect homicides. Children ages four and under accounted for 81% of the deaths. Sixty-two percent of the victims were black. Socioeconomic status was indicated to be low in 83% of the deaths.

Table 63
Number and Percent of Child Homicides Due to Child Abuse and Neglect Reviewed by Sex and Age

Sex and Age Group	2002		2003	
	Number	Percent	Number	Percent
Male	13	65.0	8	36.4
Under One Year	3	15.0	1	4.5
1 to 4 Years	9	45.0	6	27.3
5 to 9 Years	0	0.0	1	4.5
10 to 14 Years	0	0.0	0	0.0
15 to 18 Years	1	5.0	0	0.0
Female	7	35.0	14	63.6
Under One Year	4	20.0	5	22.7
1 to 4 Years	2	10.0	4	18.2
5 to 9 Years	0	0.0	1	4.5
10 to 14 Years	0	0.0	2	9.1
15 to 18 Years	1	5.0	2	9.1
Total	**20**	**100.0**	**22**	**100.0**

Table 64
Number and Percent of Child Homicides Due to Child Abuse and Neglect Reviewed by Race and Sex

Race and Sex	2002		2003	
	Number	Percent	Number	Percent
White	8	40.0	7	31.8
Male	6	30.0	1	4.5
Female	2	10.0	6	27.3
Black	12	60.0	14	63.6
Male	7	35.0	6	27.3
Female	5	25.0	8	63.4
Other	0	0.0	1	4.5
Male	0	0.0	1	4.5
Female	0	0.0	0	0.0
Total	**20**	**100.0**	**22**	**100.0**

Table 65
Number and Percent of Child Homicides Due to Child Abuse and Neglect Reviewed by Person Who Inflicted the Injury

Relationship	2002		2003	
	Number	Percent	Number	Percent
Parent(s)	9	45.0	10	45.5
Step Parent(s)	2	10.0	2	9.1
Foster Parent(s)	2	10.0	3	13.6
Parent's Partner	6	30.0	2	9.1
Sibling	0	0.0	1	4.5
Friend	1	5.0	0	0.0
Unknown	0	0.0	4	18.2
Total	**20**	**100.0**	**22**	**100.0**

Of the 19 children who were killed by their parents, eleven were killed by their mother and eight were killed by their father.

Table 66
Number and Percent of Child Homicides Due to Child Abuse and Neglect Reviewed by Event Trigger

Trigger	2002		2003	
	Number	Percent	Number	Percent
Crying	5	25.0	5	22.7
Toilet Training	3	15.0	1	4.5
Disobedience	0	0.0	2	9.1
Family Violence	2	10.0	0	0.0
Trying to Hide Pregnancy/Birth	2	10.0	0	0.0
Other	5	25.0	6	27.3
Unknown	3	15.0	8	36.4
Total	**20**	**100.0**	**22**	**100.0**

Crying continued to be the primary suspected trigger prompting the abusive event (10 cases). The suspected trigger was unknown or listed as "other" in 22 of the cases.

CPS had been previously involved* with the child who died in 55% of the deaths. A case was substantiated for abuse after the death in 79% of the deaths. Charges were filed in 37 of the 42 cases.

There was evidence of prior injuries in 36% of the cases. The child or family was documented as being high-risk for child abuse and neglect about 38% of the time.

Teams believed that the child abuse and neglect deaths reviewed were either probably or definitely preventable 96% of the time.

* The report form asks only whether there were prior referrals or substantiations; currently, data is not collected on the type or level of involvement, or whether the case was still open at the time of death.

Local Initiatives to Prevent Child Deaths

Local teams proposed 27 child abuse prevention activities, and 10 were initiated by the teams. Seventeen of the proposed initiatives addressed changes in agency practices or education via the media.

Calhoun - Suggested that a Shaken Baby Syndrome video be made mandatory viewing following the birth of a child and before discharge from the hospital.

Charlevoix, Oakland and Ottawa - Emphasized the need to continually educate mandated reporters about submitting 3200s (CPS referrals) and never assuming that another mandated reporter is filing the report.

Genesee - Expressed concern over training and investigation practices of DHS workers, indicating that DHS should review and improve these areas.

Kalamazoo - Local legislators were so upset by the abuse death of a child that they vowed to introduce legislation to address the issue of child abuse. In addition, the team met with local housing inspectors to assist in developing and improving community response to "bad" situations. Other proposals were to tie vouchered rent to regular inspections, to better educate people on the importance of working smoke detectors, and seek increased focus by the Office of the Children's Ombudsman.

Wayne - School-related educational initiatives included educating teachers and students about using the toll-free Crisis Hotline; the availability of Safe Havens for children who feel unsafe at home; and dealing with violence and breaking the cycle. Other activities indicated by Wayne included closer agency attention to known mental health issues, and better regulation of foster care-related placements. In addition, messages about bathtub water safety and domestic violence received media attention.

Recommendations for Policymakers

1. The Michigan Department of Human Services, Michigan Department of Community Health and Michigan Department of Education: Ensure that human service professionals working with high-risk families are knowledgeable about support programs and resources for new families, especially Maternal Support Services, Infant Support Services and other state and community-based primary and secondary prevention programs.

2. The Michigan Department of Human Services, Michigan Department of Community Health and Michigan Department of Education, in partnership with other disciplines: Develop (and Michigan Legislature: allocate funds for) home visitation programs using best practices, with home nursing as a component, targeting low-income, at-risk children/families.

3. The Michigan Department of Human Services and the Children's Trust Fund: Continue the Shaken Baby Syndrome Prevention campaign.

4. The Michigan Health and Hospital Association: Implement, statewide, the Children's Trust Fund Shaken Baby Syndrome prevention information/programs.

5. The Children's Cabinet: Commission research identifying the risk and protective factors for fatal child maltreatment.

Recommendations for Parents and Caregivers

- Make sure that your choice of a caretaker or babysitter is a patient person, who is experienced in caring for children, has positive feelings for your child and is not prone to violent behavior, drug abuse or alcoholism.
- If you are feeling overwhelmed or frustrated by your child, call someone you trust and find a way to calm yourself. Never strike, shake or throw your child.

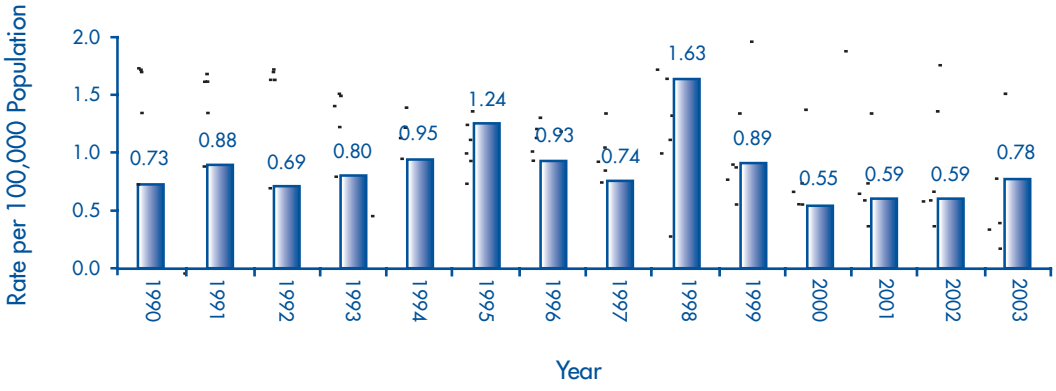
Homicide – Other Causes

Background

This section includes all other homicides reviewed by teams that were not the result of firearms or child abuse and neglect, as described in the previous sections. This includes deaths that resulted from poisoning, motor vehicle crashes, drowning, suffocation and strangulation and fire and burn. Interestingly, MDHS and the CRP (mentioned in the Special Issues section) deemed several of these "other homicides" to be abuse and neglect -related. The CDR teams, however, opined that the fatal event, although a homicide, was not abuse and neglect either because a perpetrator could not be identified or the fatal event was a one-time-only occurrence attributed to a psychotic episode.

Michigan Mortality Data from Death Certificates

Figure 46
Michigan Child Homicide Rates Due to Other Causes, Ages 0-18, 1990-2003

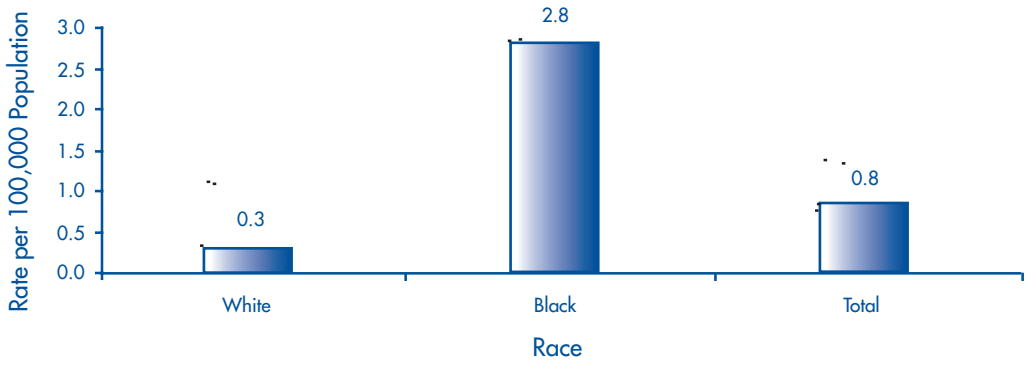


Note: The rate of 0.59 in 2002 represents 16 deaths; the 0.78 in 2003 represents 21 deaths.

Table 67
Number and Percent of Michigan Child Homicides Due to Other Causes by Sex and Age

Sex and Age Group	2002		2003	
	Number	Percent	Number	Percent
Male	7	43.8	10	47.6
Under One Year	1	6.3	2	9.5
1 to 4 Years	3	18.8	6	28.6
5 to 9 Years	0	0.0	0	0.0
10 to 14 Years	0	0.0	1	4.8
15 to 18 Years	3	18.8	1	4.8
Female	9	56.3	11	52.4
Under One Year	4	25.0	2	9.5
1 to 4 Years	1	6.3	2	9.5
5 to 9 Years	0	0.0	2	9.5
10 to 14 Years	2	12.5	2	9.5
15 to 18 Years	2	12.5	3	14.3
Total	**16**	**100.0**	**21**	**100.0**

Figure 47
Michigan Child Homicide Rates Due to Other Causes by Race, Ages 0-18, 2003



Child Death Review Team Findings from CDR Case Reports

CDR teams reviewed the homicides of 17 children in 2002 and 2003 that were due to causes other than firearms or child abuse and neglect. Over half (53%) of these deaths were to children under the age of five.

Table 68
Number and Percent of Homicides Reviewed Due to Other Causes by Sex and Age

Sex and Age Group	2002		2003	
	Number	Percent	Number	Percent
Male	4	44.4	2	25.0
Under One Year	1	11.1	1	12.5
1 to 4 Years	1	11.1	1	12.5
5 to 9 Years	0	0.0	0	0.0
10 to 14 Years	0	0.0	0	0.0
15 to 18 Years	1	11.1	0	0.0
19 Years and Older	1	11.1	0	0.0
Female	5	56.6	6	75.0
Under One Year	2	22.2	2	25.0
1 to 4 Years	0	0.0	1	12.5
5 to 9 Years	0	0.0	0	0.0
10 to 14 Years	1	11.1	1	12.5
15 to 18 Years	2	22.2	2	25.0
19 Years and Older	0	0.0	0	0.0
Total	**9**	**100.0**	**8**	**100.0**

CPS had been previously involved in four of the 17 cases, and of those, three had been with the child who died.

Table 69
Number and Percent of Child Homicides Reviewed by Other Causes

Cause	2002		2003	
	Number	Percent	Number	Percent
Motor Vehicle	3	33.3	0	0.0
Fire and Burn	1	11.1	0	0.0
Drowning	0	0.0	3	37.5
Poisoning	1	11.1	2	25.0
Suffocation or Strangulation	2	22.2	3	37.5
Other	1	11.1	0	0.0
Undetermined	1	11.1	0	0.1
Total	**9**	**100.0**	**8**	**100.0**

Of the three homicides that were due to motor vehicle crashes: an infant was killed when a car fleeing the police T-boned the car in which she was an improperly restrained passenger; a 17-year-old was a properly restrained passenger in a vehicle that crashed while being chased by two men after a drug-deal went sour; and a 19-year-old was the driver of a car that careened into a pole while drag racing with another car. His passenger lived; the driver of the other car was charged with manslaughter.

The one child that died as a result of fire and burn was a teenager who was killed in a drug-related incident, when a known narcotics address was firebombed by a "Molotov Cocktail;" a total of three people died in this event.

Three homicide drownings were reviewed. In one case, a mentally disabled youth confessed to drowning his younger sister. The other two drownings occurred when a mother drowned her two young daughters and then shot herself. The CDR team reviewing this later case did not find this to be attributable to child abuse, as this mother had been, prior to this fatal event, a competent and nurturing parent. The sense was that she experienced a one-time psychotic event.

Three homicide poisonings were reported. In one, a three-month-old died from a lethal ingestion of alcohol and cocaine. Initially, the ME ruled this an accidental asphyxiation resulting from co-sleeping. The death certificate was amended to homicide after the toxicology report came in. In the second case, two adults and a one-year-old were found dead in their apartment. Little information was known about the exact cause of death at the time the report was turned in, although there was evidence of methadone in the child's system. In the final case, an infant and her family were visiting from another state when the child died while co-sleeping between her parents. Although initially labeled a positional asphyxia, the manner was changed to homicide when methamphetamine was found in the child's blood.

Five of the "Homicide – Other Cause" deaths were classified as Suffocation and Strangulation. A father was bathing his two children, an infant and a toddler. The father claimed to have "turned away for just a minute," finding the infant face down in the water. When the autopsy revealed strangulation as the cause of death, the father indicated that he had inadvertently squeezed the child's neck too hard during the CPR process. A teenaged girl was found deceased on the bedroom floor of her apartment, a result of manual strangulation from an unknown perpetrator. Another teenaged girl was strangled by her cousin. Still another teen was found strangled in a vacant house after being thrown out of her home by her mother due to suspicions that she might be pregnant. The final case involved the smothering of a toddler by his mentally disabled mother with a pillow.

The two remaining "Homicide - Other Cause" cases involved an infant and a pre-teen. The infant died from a closed head injury after her pregnant mother jumped from a 4th story window to escape an arson attack. The mother died in the fall and the baby, delivered via C-section, died days later. In the final case, a pre-teenaged girl was reported missing after she did not return from a walk; her body was found in a ditch a couple of weeks later, but according to the death certificate, a cause of death could not be determined. The manner of death, however, was ruled a homicide.

The teams determined that the deaths were either probably or definitely preventable in 63% of these cases.

Local Initiatives to Prevent Child Deaths

Local teams identified two prevention initiatives related to other types of child homicides, proposing school and media education about the non-violent resolution of disputes in relationships and safe driving, specifically addressing the use of drugs and alcohol.

Child Deaths IN MICHIGAN

section seven

SUICIDES

Overview of Child Suicides, Ages 0-18

Background

Suicide is the third leading cause of death for young people in the U.S. ages 10-19, behind unintentional injury (mostly motor vehicle crashes) and firearm homicide. However, rates remain unacceptably high. In 2001, more young people in the U.S. died of suicide than cancer, heart disease, AIDS, birth defects, stroke, pneumonia, influenza and chronic lung disease combined.

Currently, the risk for youth suicide is highest among young white males. Yet from 1997 through 2001, suicide rates in the U.S. increased the most among young Hispanic males. Adolescent males of all races are four times more likely to commit suicide than females. From 1992-2001, males committed 84% of suicides for individuals aged 15-19. However, adolescent females are nearly twice as likely as males to *attempt* suicide. In a survey of Michigan high school students, eight percent of boys vs 13% of girls had made one or more suicide attempts during the past 12 months.

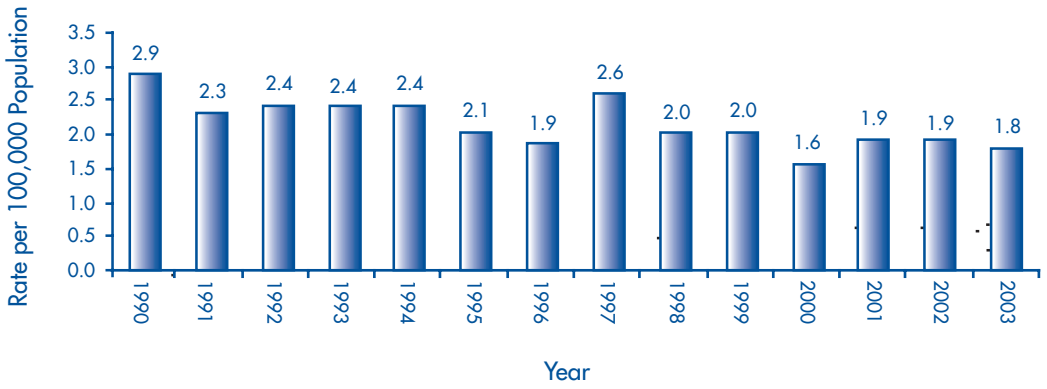
The CDC attributes the slight decrease in overall suicides in the U.S. from 1992-2001 mainly to the restriction of access to lethal means. However, the use of suffocation as a means of suicide for persons ages 10-19 has increased over the last decade.

New research being conducted in the U.S. examines the protective factors that can prevent teen suicide. A strong, positive connection to parents, family and/or school may provide some immunity for teens when they are troubled and may help prevent suicides.

Major Risk Factors

- Previous suicide attempt
- Mood disorders and mental illness
- Substance abuse
- Childhood maltreatment
- Parental separation or divorce
- Inappropriate access to firearms
- Interpersonal conflicts or losses without social support
- Previous suicide by a relative or close friend
- Other significant struggles such as bullying or issues of sexuality

Figure 48
Michigan Child Suicide Rates, Ages 0-18, 1990-2003



Note: The rate of 1.9 in 2002 represents 50 deaths; the 1.8 in 2003 represents 47 deaths.

Table 70
Number and Percent of Michigan Child Suicides by Sex and Age

Sex and Age Group	2002		2003	
	Number	Percent	Number	Percent
Male	41	82.0	39	83.0
10 to 14 Years	9	18.0	8	17.0
15 to 18 Years	32	64.0	31	66.0
Female	9	16.0	8	17.0
10 to 14 Years	3	6.0	3	6.4
15 to 18 Years	6	12.0	5	10.6
Total	**50**	**100.0**	**47**	**100.0**

Figure 49
Michigan Child Suicide Rates by Race, Ages 0-18, 2003

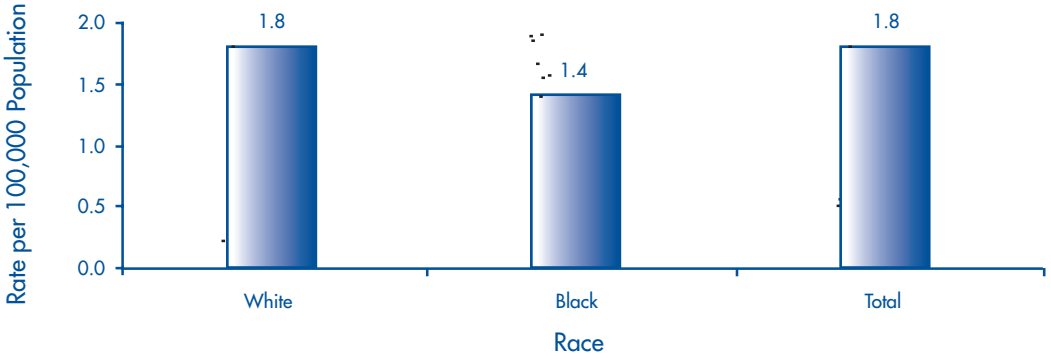
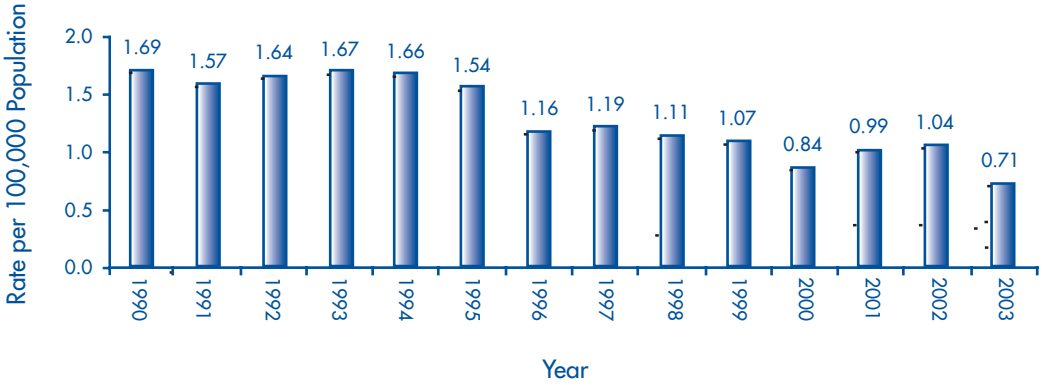
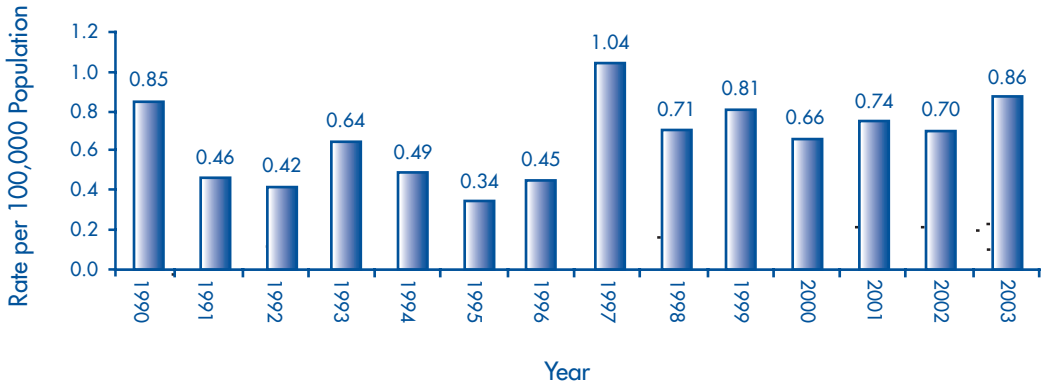


Figure 50
Michigan Child Suicide Rates Due to Firearms and Weapons, Ages 0-18, 1990-2003



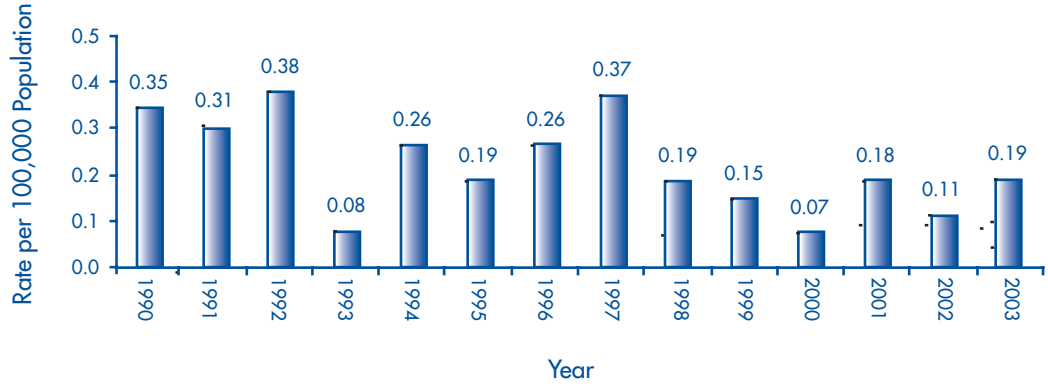
Note: The rate of 1.04 in 2002 represents 28 deaths; the 0.71 in 2003 represents 19 deaths.

Figure 51
Michigan Child Suicide Rates Due to Suffocation or Strangulation, Ages 0-18, 1990-2003



Note: The rate of 0.70 in 2002 represents 19 deaths; the 0.86 in 2003 represents 23 deaths.

Figure 52
Michigan Child Suicide Rates Due to Other Causes, Ages 0-18, 1990-2003



Note: The rate of 0.11 in 2002 represents 3 deaths; the 0.19 in 2003 represents 5 deaths.

Of the eight suicides from other causes that occurred in 2002 and 2003, five were male and three were female; all eight were white; and one was between 10 and 14 years, and seven were between 15 and 18 years.

Child Death Review Team Findings from CDR Case Reports

Local teams conducted 85 reviews of suicides in 2002 and 2003. However, two separate teams reviewed one of the deaths that occurred during this time - one in the county of residence and the other in the county of incident. Because the findings of these teams differed slightly, this death will be reported separately.

Table 71
Number and Percent of Child Suicides Reviewed by Sex and Age

Sex and Age Group	2002		2003	
	Number	Percent	Number	Percent
Male	33	84.6	35	76.1
10 to 14 Years	7	17.9	7	15.2
15 to 18 Years	26	66.7	27	58.7
19 Years and Older	0	0.0	1	2.2
Female	6	15.4	11	23.9
10 to 14 Years	1	2.6	3	6.5
15 to 18 Years	5	12.8	8	17.4
19 Years and Older	0	0.0	0	0.0
Total	**39**	**100.0**	**46**	**100.0**

Table 72
Number and Percent of Child Suicides Reviewed by Race and Sex

Race and Sex	2002		2003	
	Number	Percent	Number	Percent
White	33	84.6	36	78.3
Male	28	71.8	28	60.9
Female	5	12.8	8	17.4
Black	1	2.6	6	13.0
Male	1	2.6	4	8.7
Female	0	0.0	2	4.3
Other	5	12.8	4	8.7
Male	4	10.3	3	6.5
Female	1	2.6	1	2.2
Total	**39**	**100.0**	**46**	**100.0**

Teams considered most youths completing suicide (51%) to be of middle socio-economic status (SES). Of the remaining suicide completers, 26% were of low SES, and in 20% of the cases, SES was unknown.

Table 73
Number and Percent of Child Suicides Reviewed by Cause of Death

Cause	2002		2003	
	Number	Percent	Number	Percent
Firearm and Weapon	22	56.4	22	47.8
Suffocation or Strangulation	14	35.9	22	47.8
Poisoning	0	0.0	1	2.2
Fall	0	0.0	1	2.2
Motor Vehicle	3	7.7	0	0.0
Total	**39**	**100.0**	**46**	**100.0**

Table 74
Number and Percent of Child Suicides Reviewed by History of Violence*

History of Violence	2002		2003	
	Number	Percent	Number	Percent
Violence in child's home	6	15.4	4	8.7
Violence toward self and others	8	20.5	9	19.6
Violence perpetrated in child's presence	3	7.7	2	4.3
Victim of bullying or violence at school	2	5.1	3	6.5

*Note: The decedent could have had a history of more than one of the above circumstances.

Thirty-three of the 85 youths whose suicides were reviewed had a history of involvement with CPS. Of those, 20 were named as the victim in the abuse or neglect allegations that were reported.

A total of 15 youths (18%) had illegal drugs, alcohol or both in their systems at the time that they committed suicide.

Table 75
Number and Percent of Child Suicides Reviewed by Circumstances

Circumstance	2002		2003	
	Number	Percent	Number	Percent
Followed a Precipitating Event	21	53.8	32	69.6
Made Prior Verbal Threats	11	28.2	19	41.3
Was Completely Unexpected	19	48.7	13	28.3
Known Mental Health Problems	9	23.1	12	26.1
Receiving Mental Health Treatment	8	20.5	10	21.7
Made Prior Attempts	2	5.1	9	19.6
Part of a Cluster Suicide	0	0.0	3	6.5

Table 76
Number and Percent of Child Suicides Reviewed by Precipitating Event

Precipitating Event	2002		2003	
	Number	Percent	Number	Percent
Recent family problems	15	38.5	18	39.1
Problems at school	11	28.2	15	32.6
Problem with girlfriend/boyfriend	7	17.9	8	17.4
Criminal legal problem	7	17.9	8	17.4
Death of friend or family member	2	5.1	6	13.0

Often, a precipitating event can be identified as a factor that contributed to the suicide. Other suicides occur with no indication as to why they happened. As they reviewed the deaths, teams found that 38% of the suicides appeared to be completely unexpected.

Firearm Suicides

CDR teams reviewed the firearm suicides of 44 youths in 2002 and 2003.

Table 77
Number and Percent of Child Suicides Due to Firearms Reviewed by Type of Weapon

Weapon	2002		2003	
	Number	Percent	Number	Percent
Shotgun	7	31.8	10	45.5
Handgun	11	50.0	6	27.3
Rifle	3	13.6	5	22.7
Unknown Firearm	1	4.5	1	4.5
Total	**22**	**100.0**	**22**	**100.0**

Four of the firearms used in these suicides had been stored in a locked cabinet. Two firearms used had a trigger lock in place at the time. In 11 cases reviewed, the teens were old enough (18) to legally purchase a firearm themselves, thereby making the limiting of access to firearms more difficult. Four of the 44 youths had regular access to firearms.

Suffocation and Strangulation Suicides

Teams reviewed the deaths of 14 youths who completed suicide by suffocation (hanging) in 2002 and 2003.

Table 78
Number and Percent of Child Suicides Due to Hanging Reviewed by Type of Object

Type of Object	2002		2003	
	Number	Percent	Number	Percent
Rope or String	6	42.9	13	59.1
Dog Leash or Chain	4	21.4	1	4.5
Belt or Tie	3	21.4	3	13.6
Other Clothes	0	0.0	2	9.1
Electrical Cord	1	7.1	2	9.1
Unknown	0	0.0	1	4.5
Total	**14**	**100.0**	**22**	**100.0**

Of the 85 suicides reviewed by all means, local teams decided that most (59%) were either probably or definitely preventable. Often, when teams indicate that a suicide was not preventable, they felt that it was either completely unexpected and therefore impossible to prevent, or that the teen was so determined to complete the act of suicide that even multiple interventions could not have prevented the death.

Local Initiatives to Prevent Child Deaths

Local teams proposed 19 suicide prevention initiatives and implemented 14 of those. They included:

Clinton - The Health Department wrote a press release on gun safety. Improved communication gaps regarding agencies and CPS in cases of suicide and other circumstances where siblings may be at risk.

Chippewa, Livingston, Wayne - Implementation of the Yellow Ribbon Suicide Prevention program in area public schools.

Gogebic - Ran billboards and radio spots about depression, started a suicide support group, conducted depression screenings at local high schools and formed a suicide prevention task force to address awareness of depression issues and treatments.

Gratiot - Recommended the creation of a counselor position in the court to assess all minor cases for alcohol and suicide risk. They planned to initiate the Massachusetts Youth Screening Instrument (MAYSI) through the court system.

Iosco - Suicide prevention activities were taken to area schools. These include school assemblies, support groups and parent meetings.

Menominee – Initiated a suicide response team and "Helping Healer" program.

Montcalm - The Intermediate School District sent six psychologists and all county school social workers to a 2-part teen suicide prevention workshop.

Lapeer - Proposed the development of legislation to impose a penalty for selling ammunition to anyone who is underage.

Shiawassee - A news article on suicide awareness was written.

Tuscola - Sent a letter to all the schools listing suicide prevention hotline numbers.

Van Buren - Money was requested from the Child Abuse and Neglect Council to bring a 12-week after school program on coping skills to area schools; conducted a suicide prevention and school bullying workshop and held a suicide prevention conference.

Recommendations for Policymakers

1. The Michigan Department of Community Health: Take the lead in collaborating with the Michigan Department of Education and Michigan Department of Human Services to support the development and implementation of a state suicide prevention plan.

2. The Office of the Governor: Support the State Mental Health Commission in addressing the access to services for youths at risk for suicide.

3. The Michigan Department of Community Health: Lead a collaboration between community mental health, the Michigan Health and Hospital Association and the Michigan Department of Education, to ensure that bereavement services are available to all children who have experienced the recent death of a family member or close friend.

4. The Michigan Department of Community Health: Ensure that parents, teachers and professionals in the fields of public and mental health, substance abuse and juvenile justice have an awareness of the risk factors of youth suicide and how to access intervention services by providing educational training and materials.

Recommendations for Parents and Caregivers

- If you notice a change in your child's behavior or habits, talk to them about it immediately and do not be afraid to seek professional help.
- If your child seems depressed, highly anxious or has made suicide threats, seek help from a professional and make sure your child cannot gain access to weapons or other means of suicide in your home.
- Take all suicide threats seriously.

Child Deaths
IN MICHIGAN
section eight

Undetermined DEATHS

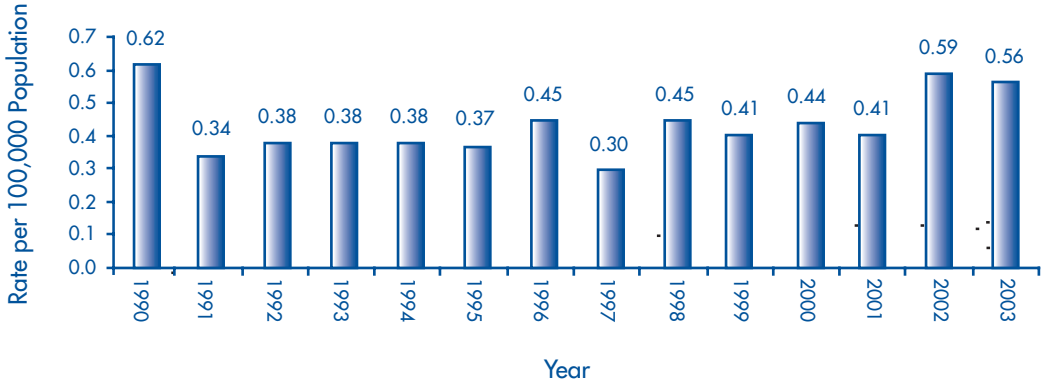
Overview of Undetermined Child Deaths, Ages 0-18

Background

"Undetermined" is assigned as the manner of death when the medical examiner believes that there is insufficient evidence or information, especially about intent, to assign the manner as Natural, Accident, Homicide or Suicide.

Michigan Mortality Data from Death Certificates

Figure 53
Michigan Child Death Rates Due to Undetermined Manner, Ages 0-18, 1990-2003



Note: The rate of 0.59 in 2002 represents 16 deaths; the 0.56 in 2003 represents 15 deaths.

Table 79
Number and Percent of Michigan Undetermined Child Deaths by Sex and Age

Sex and Age Group	2002		2003	
	Number	Percent	Number	Percent
Male	10	62.5	10	66.7
Under One Year	3	18.8	2	13.3
1 to 4 Years	1	6.3	1	6.7
5 to 9 Years	1	6.3	0	0.0
10 to 14 Years	1	6.3	4	26.7
15 to 18 Years	4	25.0	3	20.0
Female	6	37.5	5	33.3
Under One Year	1	6.3	2	13.3
1 to 4 Years	1	6.3	0	0.0
5 to 9 Years	4	25.0	0	0.0
10 to 14 Years	0	0.0	0	0.0
15 to 18 Years	0	0.0	3	20.0
Total	**16**	**100.0**	**15**	**100.0**

Child Death Review Team Findings from CDR Case Reports

In 2002 and 2003, death certificates recorded that 31 Michigan children died of undetermined manner. CDR teams reported reviewing 106 child deaths of undetermined manner in those two years. The main reasons for the discrepancy in numbers are: (1) manner of death is unavailable from Vital Records, so SIDS and other unexpected infant mortality are considered "Natural" manner under the cause of death coding rules of the National Center for Health Statistics regardless of whether the local medical examiner called the manner "Undetermined;" and (2) death certificates may include additional information from the certifying physician or have been amended since the time that CDR teams conducted the review.

Table 80
Number and Percent of Undetermined Child Deaths Reviewed by Sex and Age

Sex and Age Group	2002		2003	
	Number	Percent	Number	Percent
Male	38	70.4	28	53.8
Under One Year	21	38.9	18	34.6
1 to 4 Years	4	7.4	3	5.8
5 to 9 Years	1	1.9	0	0.0
10 to 14 Years	4	7.4	2	3.8
15 to 18 Years	8	14.8	5	9.6
Female	16	29.6	24	46.2
Under One Year	13	24.1	19	36.5
1 to 4 Years	2	3.7	1	1.9
5 to 9 Years	1	1.9	1	1.9
10 to 14 Years	0	0.0	1	1.9
15 to 18 Years	0	0.0	2	3.8
Total	**54**	**100.0**	**52**	**100.0**

Table 81
Number and Percent of Undetermined Child Deaths Reviewed by Cause

Cause	2002		2003	
	Number	Percent	Number	Percent
Unsafe Infant Sleep Environment	27	50.0	26	50.0
Substance Use / Overdose	8	14.8	4	7.7
Child Abuse and Neglect	6	11.1	4	7.7
Self-Inflicted	3	5.6	6	11.5
Other	7	13.0	10	19.2
Unknown	3	5.6	2	3.8
Total	**54**	**100.0**	**52**	**100.0**

For the deaths that were known to be self-inflicted, the manner was ruled undetermined because the intent of the individuals were unknown.

Sleep Related

Most of the 53 deaths in this category were related to unsafe sleeping environments:

- 26 infants (49%) died while sleeping in a bed with adults and/or other children. In nine of those cases, it was known that someone rolled onto the infant.
- 14 infants (26%) were found with bedding covering their heads, or near their mouth and nose.
- 4 infants (8%) were placed to sleep alone on a surface not designed for infants, such as an adult bed, couch or changing table. In one case, a crib had been modified by removing one of the sides.
- 3 infants (6%) were placed to sleep on their backs on a pillow or other soft bedding, and subsequently rolled over and were found face-down in the pillow/bedding.
- 2 infants (4%) were placed to sleep on their stomachs on top of a pillow or other soft bedding.

Overdose

Of the 12 deaths in this category, there were often multiple substances found in the toxicology screen:

- 5 involved cocaine
- 4 involved heroin or methadone
- 1 involved marijuana
- 2 involved benzodiazepines
- 4 involved other prescription medications
- 1 involved over-the-counter medications
- 2 involved "huffing"

Most of the substance-related deaths (92%) were to teenagers. In these cases, it was unknown whether the overdose was accidental or suicidal; however, in one case, the manner was assigned as undetermined because it is unknown if the death was accidental or a homicide.

Possible Abuse or Neglect

In 10 cases, the CDR teams felt that there may have been abuse or neglect involved, even though the manner of death was ruled to be undetermined. Three cases involved a head injury, one case involved multiple injuries, four cases involved medical neglect and two cases had conflicting stories. In one case, charges were filed against the mother.

Self-inflicted

There were nine cases reviewed in which it was known that the fatal injuries were self-inflicted, but the decedents' intent was indeterminate. It was noted that the child had received mental health services in two of these cases. Three of these children had made prior attempts. Two cases involved firearms.

Others

The remaining 22 undetermined deaths included: a fire, a fall, a drowning, the discharge of an improperly stored firearm, a carbon monoxide poisoning, an overheating, two that suffered from complications of intrauterine drug exposure, a birth trauma, an in-utero domestic violence event, several involving medical problems and several where the details were unclear.

Overall, CDR teams believed that 70% of undetermined deaths reviewed were either probably or definitely preventable.

Local Initiatives to Prevent Child Deaths

Teams proposed 72 prevention activities related to deaths of undetermined manner, initiating 41 of those, including:

Allegan – Initiated the "Know the Risks" campaign to educate the community about the risks of sleeping with infants.

Genesee – Promoted their Safe Sleep campaign in the media.

Kalamazoo – Promoted their "Kalamazoo Infant Safe Sleep" campaign in the media.

Livingston – Printed an article on water safety in the 4C Newsletter, and proposed sending similar information to other agencies that have summer activities for children such as summer camps, the Girl Scouts and others.

Montcalm – Reviewed the importance of Safe Sleep messages at Public Health staff meetings.

Wayne – Changes were made in agency practice to create additional back-up requirements for foster parents. Infant safe sleep environment education was presented in the media. And, several agencies came together to hold community forums on safe sleep.

Recommendation for Policymakers

1. The prosecuting attorney, law enforcement agencies, medical examiner and the Department of Human Services in every county: Upon the promulgation of rules by the Michigan Department of Community Health per Public Act 179 of 2004, jointly adopt and implement the child death scene investigation protocols.

Child Deaths IN MICHIGAN section nine

Michigan FIMR Network

Fetal and Infant Mortality REVIEW

The Fetal and Infant Mortality Review (FIMR) Process

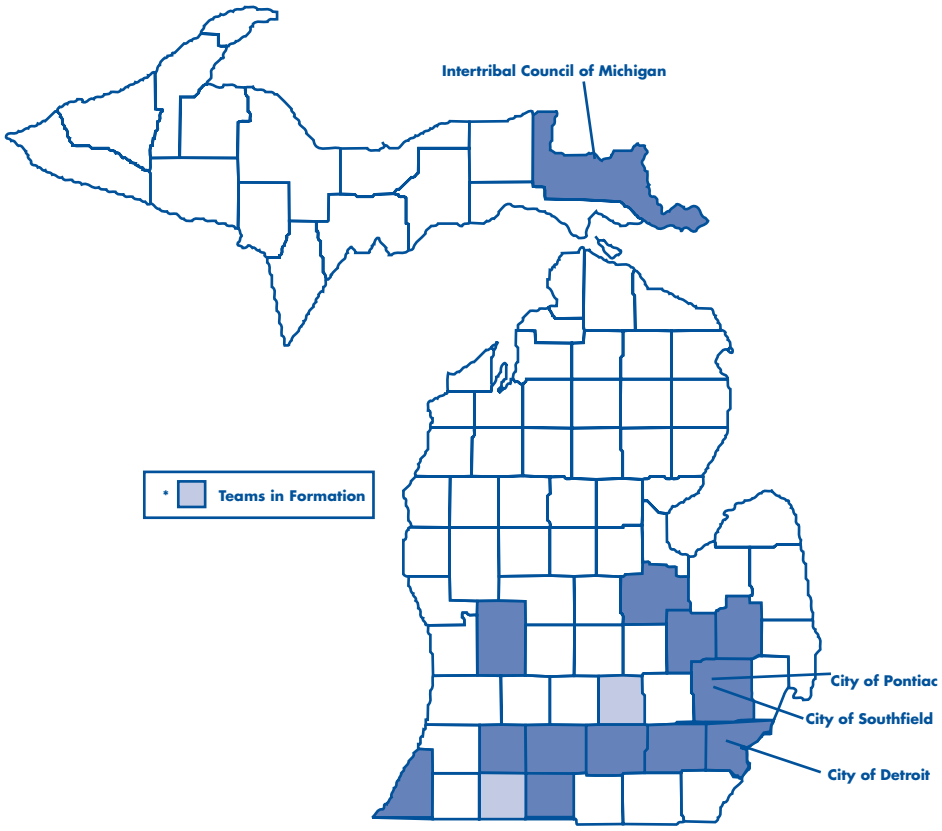
Program History

Michigan's Fetal and Infant Mortality Review (FIMR) program began in 1991, when the communities of Saginaw and Battle Creek were both awarded three-year grants to develop and institutionalize a local community process for Fetal and Infant Mortality Review. The American College of Obstetrics and Gynecology (ACOG) sponsored the grants through National FIMR, whose goal is to help communities better understand the issues involved in infant deaths and to design programs and services, new linkages and surveillance systems to improve pregnancy outcomes and bring about a reduction in infant mortality. Battle Creek was unable to continue the process when funding from a federal grant ended. Saginaw, however, found other funding that allowed the FIMR to continue without interruption. This project is one of the oldest in the country, and continues to be a model for newly developing local teams in Michigan.

There are 14 FIMR teams in Michigan, and two teams in formation at the time of this writing (Figure 54). While every team faced unique challenges to become established, here are some highlights of Michigan's FIMR program history:

- In 1993, Detroit was awarded a Healthy Start grant to study infant deaths using the FIMR approach, in conjunction with Wayne State University. Detroit became a demonstration project for inner-city infant mortality reduction strategies.
- In 1997, Kalamazoo was awarded a Healthy Start grant that included a FIMR. Although FIMR is no longer included as a common performance measure for Healthy Start, Kalamazoo has recognized the importance of knowing the local determinants of infant mortality and has rolled FIMR into their local health plan supported by foundation and community funds.
- In 1997, the State of Michigan was awarded a three-year grant to coordinate and give technical support to new and existing FIMR programs in the state. Michigan Public Health Institute was contracted to provide support to the local teams. A state coordinator was hired, and between 1997-2001 four new projects began in Genesee, Kent and Branch Counties, as well as the City of Pontiac. The City of Detroit and Calhoun County were also funded with this grant.
- In 2003, a unique FIMR collaborative was started with the Intertribal Council of Michigan to review Native American infant deaths throughout the state.

Figure 54
Fetal and Infant Mortality Review Teams



The Michigan Department of Community Health (MDCH - Title V) continues to support the FIMR teams with technical assistance and statistical and epidemiological information. The value of review and surveillance has been recognized, and provides the background for establishing statewide support for local FIMR teams. The counties that have FIMR teams account for approximately 68% of infant mortality,[1] so there is already great potential to learn about infant mortality. The original FIMR projects have also demonstrated the interaction needed between FIMR and other Maternal and Child Health (MCH) programs designed to lower infant mortality.

Above all, the development of state support for local FIMR teams was designed to help improve birth outcomes in Michigan. Having experienced essentially no reduction in infant mortality since 1996, despite some continued reductions in other areas of the nation, Michigan is determined to improve this picture. The current Title V and five-year plan includes information gained from local FIMR findings and calls for continuation of this process. Communities with infant mortality rates above the state average and those communities with a significant racial or ethnic disparity in infant mortality are targeted to improve the identification of local issues affecting poor birth outcomes.

[1] From a comparison of total number of infants deaths for FIMR counties to total number of infant deaths for the state.

Conducting a FIMR Review

A Two-Tiered System

The Michigan FIMR projects follow the national model of a two-tiered process. The first tier is the Case Review Team (CRT), which is a local multidisciplinary group that comes together to examine confidential, de-identified cases of infant deaths. A summary of the case is presented to the CRT. The team identifies issues in individual cases, looks at trends over time, and makes recommendations for community change when appropriate.

The second tier is the Community Action Team (CAT), which is a diverse group of community leaders, advocates and consumers who take the recommendations for community change from the CRT and prioritize the issues. They are responsible for the design and implementation of interventions to improve service systems and resources for women, infants, children and families within the community.

The continuous nature of the FIMR process provides a built-in feedback mechanism that helps monitor whether or not policy recommendations and actions are implemented. Changes (or lack thereof) in the community service systems and resources for women, children and families will be evident in new case reviews. Additionally, mechanisms are utilized to enhance communication between the CRT and CAT about the progress of interventions.

Membership

Members of the CRTs are a mix of professionals and agency representatives that provide services or community resources for families in the project area. The CRT is the information processor of the FIMR program. Michigan's CRTs include experts in the following areas:

- *Public Health Providers*: WIC, Family Planning, Medicaid, Medical Examiners, Nursing, MSS/ISS providers, Outreach & Community Health workers
- *Human Service Providers*: DHS (Child Protective Services), Substance Abuse Services, Mental Health, Domestic Violence, Local Law Enforcement, Teen Services, Healthy Start
- *Health Care Providers*: Obstetricians, Pediatricians, Neonatologists, Nurse Midwives, Social Workers, Registered Dieticians, Family Practice and ED Physicians, Maternal Fetal Medicine Specialists, Geneticists, EMS
- *Consumers and Advocacy Groups*: March of Dimes, Michigan Healthy Mothers Healthy Babies coalition, Tomorrow's Child (formerly Michigan SIDS Alliance), Planned Parenthood
- *Community Leaders*: Educators, Clergy, City Council, County Commissioners

The CATs are made up of persons with the political will and fiscal resources to create large-scale systems change, and those who can bring a community perspective on how best to create the desired change. Members may sit on both CRTs and CATs. In addition to the types of members that sit on CRTs, CAT membership may also include:

- CEO (or other high-level position) of the local hospital
- Representatives from managed care organizations
- Representatives of the local or county medical society
- Government agencies such as housing authority, transportation authority, local commissioner of health
- Council for Abuse and Neglect
- Community business leaders, Chamber of Commerce representatives
- Minority rights groups

- Civic groups (Kiwanis, Junior League, United Way)
- Community Collaboratives

Membership is voluntary. In Michigan, hundreds of committed members take time from their jobs and families to help identify issues associated with infant mortality in their communities and take action to prevent future deaths.

Team Coordination

To insure the success of a local FIMR, a dedicated team coordinator takes responsibility for the management of the activities of the program. The coordinator may supervise FIMR staff members (including home interview staff), abstract vital statistics and medical records, develop case summaries, facilitate team meetings and serve as program liaison to other community agencies involved in the process. The team coordinator also develops written recommendations based on the review findings and ensures that they are regularly brought to the CAT for deliberation and prioritization.

Cases Selected for Review

FIMR teams usually review cases six to eight months after the death (it takes about 2-3 months of field work to have cases ready for review). Local teams determine the number and types of cases to be reviewed. Some communities review all of their infant deaths (infants born live who do not survive until their first birthday) in a calendar year. Teams with higher numbers of infant deaths use analysis of community priorities and other MCH models such as Perinatal Periods of Risk (PPOR) to guide their case selection process.

At the Review

Data are collected from a variety of sources prior to the meeting. These may include prenatal care history, maternal hospitalizations, labor and delivery records, infant hospital records (pre and post discharge), well baby and sick baby visits, infant emergency department and hospital readmissions, DHS history, police records, support services such as WIC, MSS and ISS. An interview with the family, particularly the mother, is also conducted.

A de-identified case summary is then prepared and presented to the team by the local coordinator/facilitator, and each case is examined for the significant social, economic, public health, educational, environmental and safety issues related to the death. Team members capture issues associated with and contributing to the death while asking the questions:

- Did the family receive the services or community resources they needed?
- Are there gaps in the systems?
- What does this case tell us about how families use the existing local resources?
- What are the barriers to care?
- What are the trends in service delivery?
- What can be done to improve policies that affect families?

After thorough discussion and review, recommendations are formulated and passed on to the CAT.

The State FIMR Network

The Michigan State FIMR Network began in 1997 when the State of Michigan was awarded a three-year grant to coordinate and give technical support to new and existing FIMR programs in the state. Network membership includes local FIMR team coordinators and staff as well as other child welfare experts. The Network meets monthly, and provides an opportunity for problem solving, resource sharing and program updates. The State FIMR Network exists to provide members with an opportunity for:

- Dialog and common understanding of issues related to infant mortality and the FIMR process
- Training topics and in-services on factors associated with maternal health and infant morbidity/mortality
- Create and maintain a base of support for FIMR personnel

A Note on the Data Used in This Report

There are two types of data presented in this report: Michigan Infant Mortality from Linked Birth-Death Certificates and FIMR Team Findings from Case Reports. The purpose for presenting infant death data in this manner is to provide an overview of all infant deaths using the Michigan Infant Mortality Data from Linked Birth-Death Certificates and then attempt to "drill-down" to more specific issues surrounding those deaths using the FIMR Team Findings from Case Reports.

Michigan Infant Mortality from Linked Birth-Death Certificates match the birth certificate and death certificate for all infants age 0 to 1, who died in the State of Michigan in a particular year. Death certificates are the official count of child deaths in Michigan, completed at the county level and submitted to the Division for Vital Records and Health Statistics, Office of the State Registrar at the Michigan Department of Community Health (MDCH). Mortality rates were calculated as the number of infant deaths ages 0 to 12 months per 1,000 live births. By matching the death certificate with the birth certificate, infant mortality statistics can be linked to birth statistics and maternal factors to provide a more complete picture of infant death.

FIMR Team Findings from Case Reports are the reports completed by local FIMR teams during the review of an infant's death, and compiled at the state FIMR office. Included in this data are infants whose death was reviewed by a local team in a particular year. Deaths are not always reviewed in the year of occurrence, especially when the death occurs late in the year. Therefore, FIMR Team Findings from Case Reports from 2002 will include deaths from previous years, and some 2002 deaths will be included in the 2003 review findings. The case reports compiled by the state office are a limited subset of the case information that is collected and discussed by local teams. Steps have been taken to expand the level of data collected at the state level in 2005.

Since the two types of data track different cohorts, the reader is cautioned not to make direct one-to-one comparisons between the Michigan Infant Mortality from Linked Birth-Death Certificates numbers and the FIMR Team Findings from Case Reports numbers.

Michigan Infant Mortality From Linked Birth-Death Certificates

Figure 55
Michigan Infant Deaths, Ages 0-1, 1990-2003

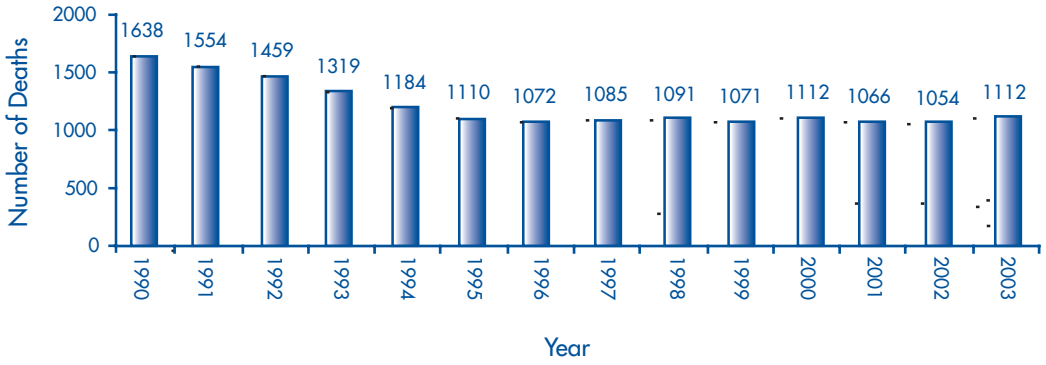
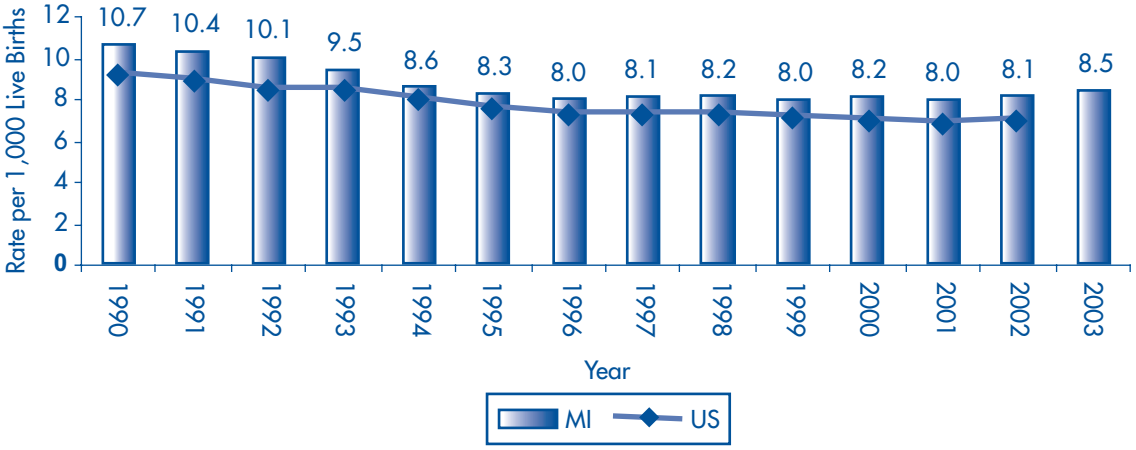


Figure 56
Michigan and United States Infant Death Rates, Ages 0-1, 1990-2003

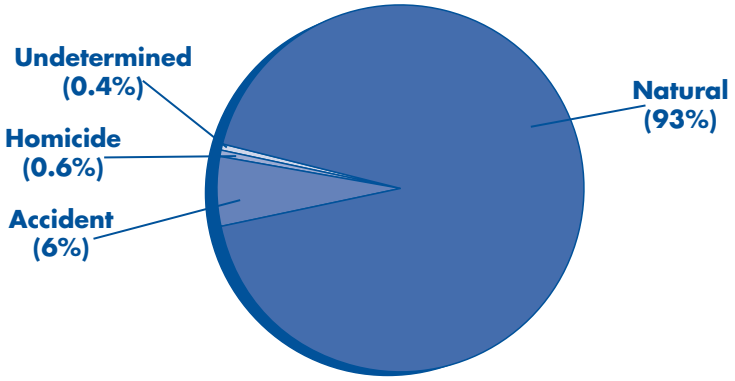


Michigan had 1,054 infant deaths in 2002 and 1,112 infant deaths in 2003. Infant mortality rates are calculated by the number of infants that died in a year per 1,000 live births; rather than per 100,000 population as it is for other age groups. While the birth rate increased one percent between 2002 and 2003, the infant death rate increased five percent. However, the infant death rate is still 21% less than it was in 1990.

Of the deaths to infants in 2003, 69% occurred during the neonatal period (within the first 28 days of life). The increase in the infant death rate in 2003 is due to an increase in deaths in the neonatal period. The postneonatal death rate (between 29 and 364 days of age) remained the same from 2002 to 2003.

While the decline in infant mortality since 1990 was similar for black infants (19%) and white infants (15%), substantial racial disparities remain. In 2003, black infants had a death rate 2.6 times that of white infants, which is a larger gap than the disparities that exist for all children aged 0-18 years.

Figure 57
Michigan Infant Deaths by Manner, Ages 0-1, 2003



Deaths in the neonatal period are almost entirely natural (98% Natural, 2% Accident). The postneonatal period has more deaths from non-natural manners, but is still predominately natural (79% Natural, 18% Accident, 2% Homicide, 1% Undetermined).

Figure 58
Percent Causes of Michigan Infant Deaths, Ages 0-1, 2003

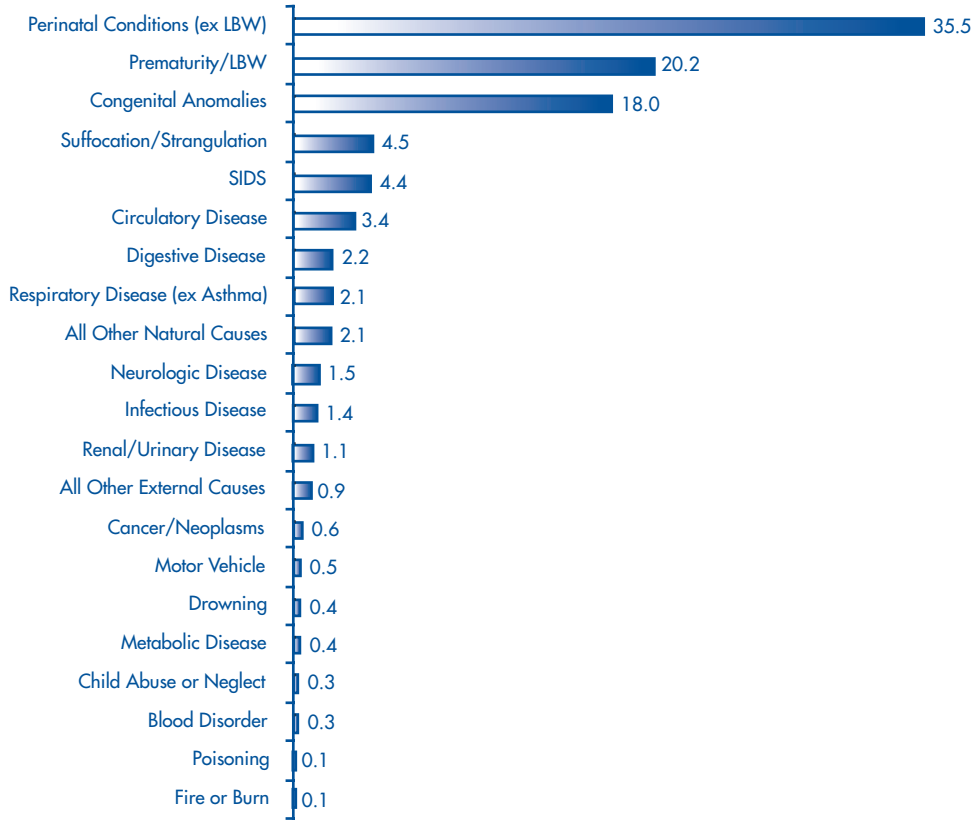


Table 82
Number and Percent of Michigan Infant Deaths by Age Group, 2002-2003

Age Group	2002		2003	
	Number	Percent	Number	Percent
Less than 24 Hours	470	44.6	486	43.7
Early Neonatal (1-6 Days)	100	9.5	136	12.2
Late Neonatal (7-27 Days)	149	14.1	149	13.4
Post Neonatal (28-364 Days)	335	31.8	341	30.7
Total	**1054**	**100.0**	**1112**	**100.0**

Table 83
Number and Percent of Michigan Infant Deaths by Birth Weight, 2002-2003

Birth Weight	2002		2003	
	Number	Percent	Number	Percent
Under 750 grams	507	48.1	526	47.3
750 grams to 1,499 grams	120	11.4	158	14.2
1,500 grams to 2,499 grams	116	11.0	144	12.9
2,500 grams and over	310	29.4	283	25.4
Unknown	1	0.1	1	0.1
Total	**1054**	**100.0**	**1112**	**100.0**

Table 84
Number and Percent of Michigan Infant Deaths by Estimated Gestational Age, 2002-2003

Gestational Age	2002		2003	
	Number	Percent	Number	Percent
Under 24 weeks	371	35.2	383	34.4
24 weeks to 31 weeks	247	23.4	300	27.0
32 weeks to 36 weeks	113	10.7	148	13.3
37 weeks and over	315	29.9	277	24.9
Unknown	8	0.8	4	0.4
Total	**1054**	**100.0**	**1112**	**100.0**

Table 85
Number and Percent of Michigan Infant Deaths by Race of Mother, 2002-2003

Maternal Race	2002		2003	
	Number	Percent	Number	Percent
White	632	60.0	698	62.8
Black	391	37.1	368	33.1
American Indian	2	0.2	4	0.4
Asian / Pacific Islander	16	1.5	29	2.5
Unknown	13	1.2	13	1.2
Total	**1054**	**100.0**	**1112**	**100.0**

Table 86
Number and Percent of Michigan Infant Deaths by Age of Mother, 2002-2003

Maternal Age Group	2002		2003	
	Number	Percent	Number	Percent
Under 15 years	7	0.7	8	0.7
15 to 19 years	150	14.2	147	13.2
20 to 24 years	306	29.0	289	26.0
25 to 29 years	250	23.7	274	24.6
30 to 34 years	205	19.4	234	21.0
35 to 39 years	106	10.1	123	11.1
40 years and older	26	2.5	36	3.2
Unknown	4	0.4	1	0.1
Total	**1054**	**100.0**	**1112**	**100.0**

Table 87
Number and Percent of Michigan Infant Deaths by Entrance to Prenatal Care, 2002-2003

Week of Entry to Care	2002		2003	
	Number	Percent	Number	Percent
12 weeks gestation and earlier	766	72.7	790	71.0
Greater than 12 weeks gestation	148	14.0	168	15.1
No prenatal care	66	6.3	70	6.3
Unknown	74	7.0	84	7.6
Total	**1054**	**100.0**	**1112**	**100.0**

Table 88
Number and Percent of Michigan Infant Deaths by Adequacy of Prenatal Care, 2002-2003

Kessner's Index	2002		2003	
	Number	Percent	Number	Percent
Adequate	669	63.5	702	63.1
Intermediate	181	17.2	198	17.8
Inadequate	191	18.1	200	18.0
Unknown	13	1.2	12	1.1
Total	**1054**	**100.0**	**1112**	**100.0**

FIMR Team Findings from Case Reports

General Findings

The following findings reflect the aggregate work of local teams, and may provide guidance in developing prevention strategies at a state level. Since very few of the infant deaths in Michigan are currently reviewed, it is difficult to show significant findings. Trends found in the FIMR findings may be a statistical artifact of low sample size or real insight into issues that currently have few other measures. Persons developing prevention strategies are encouraged to take these findings into consideration, as they could potentially be an early warning of problem issues.

Table 89
Number and Percent of FIMR Deaths Reviewed by County*

County	2002		2003	
	Number	Percent	Number	Percent
Berrien	–	–	26	11.6
Calhoun	3	2.6	10	4.5
Genesee	5	4.3	4	1.8
Kalamazoo	26	22.4	17	7.6
Kent	16	13.8	14	6.3
Ingham	–	–	1	0.4
Jackson	–	–	13	5.8
Oakland	31	26.7	28	12.5
Saginaw	14	12.1	18	8.0
Washtenaw	–	–	24	10.7
Wayne	21	18.1	64	28.6
Intertribal Council	–	–	5	2.2
Total	**116**	**100.0**	**224**	**100.0**

* Berrien, Ingham, Jackson, Washtenaw and the Intertribal Council did not conduct any reviews in 2002. Branch and Lapeer had not turned in any cases for either year at the time of this writing.

Some local teams reviewed more deaths than are reported here, but did not submit that information to the state.

Table 90
Number and Percent of FIMR Deaths Reviewed by Age Group

Age Group	2002		2003	
	Number	Percent	Number	Percent
Less than 24 Hours	27	23.3	95	42.4
Early Neonatal (1-6 Days)	27	23.3	41	18.3
Late Neonatal (7-27 Days)	16	13.8	24	10.7
Post Neonatal (28-364 Days)	45	38.8	60	26.8
Unknown	1	0.9	4	1.8
Total	**116**	**100.0**	**224**	**100.0**

The majority of deaths reviewed by FIMR teams in 2002 and 2003 were neonatal deaths (68%), most of them related to complications caused by prematurity and low birth weight (LBW).

Table 91
Number and Percent of FIMR Deaths Reviewed by Manner of Death

Manner of Death	2002		2003	
	Number	Percent	Number	Percent
Natural*	96	82.8	199	88.8
Accidental	15	12.9	16	7.1
Homicide	1	0.9	0	0.0
Undetermined	4	3.4	6	2.7
Unknown	0	0.0	3	1.3
Total	**116**	**100.0**	**224**	**100.0**

* Death from a medical or internal cause, such as complications of prematurity, congenital anomalies, etc.

Table 92
Number and Percent of FIMR Deaths Reviewed by Cause of Death

Cause of Death	2002		2003	
	Number	Percent	Number	Percent
Perinatal Condition	64	55.2	134	59.8
Prematurity (28-37 wks)	5	4.3	9	4.0
Extreme Prematurity (<28 wks)	53	45.7	124	55.4
Hypoxia	5	4.3	0	0.0
Respiratory Distress	1	0.9	1	0.4
Congenital Anomaly	11	9.5	39	17.4
Nervous System	2	1.7	9	4.0
Cardiovascular	3	2.6	9	4.0
Respiratory	0	0.0	5	2.2
Genitourinary	3	2.6	3	1.3
Musculoskeletal	0	0.0	4	1.8
Chromosomal	3	2.6	4	1.8
Other	0	0.0	5	2.2
Infection	7	6.0	11	4.9
Nervous System	1	0.9	1	0.4
Respiratory	3	2.6	7	3.1
Septicemia	2	1.7	1	0.4
Other	1	0.9	2	0.9
Injury	17	14.7	15	6.7
Drowning	2	1.7	0	0.0
Fire / Burn	0	0.0	1	0.4
Poisoning	0	0.0	1	0.4
Suffocation	15	12.9	13	5.8
SIDS	12	10.3	15	6.7
Other	2	1.7	2	0.9
Undetermined	3	2.6	5	2.2
Unknown	0	0.0	3	1.3
Total	**116**	**100.0**	**224**	**100.0**

The leading causes of infant death in Michigan are perinatal conditions including low birth weight and prematurity, congenital anomalies, suffocation and sudden infant death syndrome (SIDS). About 89% of the known causes of infant deaths reviewed by teams fell into one of these categories. Deaths due to prematurity accounted for over half of the cases reviewed for both years.

Table 93
Number and Percent of FIMR Deaths Reviewed by Birth Weight

Birth Weight	2002		2003	
	Number	Percent	Number	Percent
Under 750 grams	50	43.1	115	51.3
750 grams to 1,499 grams	13	11.2	23	10.3
1,500 grams to 2,499 grams	15	12.9	27	12.1
2,500 grams and over	36	31.0	44	19.6
Unknown	2	1.7	15	6.7
Total	**116**	**100.0**	**224**	**100.0**

About 68% of the cases reviewed by local FIMR teams in 2002 and 74% of cases reviewed in 2003 were LBW - less than 5 pounds and 8 ounces or 2,500 grams. Of these low birth weight babies, approximately 67% who die are extremely LBW - weighing less than 1 pound 6.5 ounces (750 grams) at birth. In contrast, only eight percent of all live births in Michigan in 2002 were LBW.

Table 94
Number and Percent of FIMR Deaths Reviewed by Gestational Age

Gestational Age	2002		2003	
	Number	Percent	Number	Percent
Under 24 weeks	38	32.8	96	42.9
24 weeks to 31 weeks	25	21.6	43	19.2
32 weeks to 36 weeks	15	12.9	31	13.8
37 weeks and over	36	31.0	47	21.0
Unknown	2	1.7	7	3.1
Total	**116**	**100.0**	**224**	**100.0**

One of the biggest predictors of infant death is the gestational age of the infant at birth. Babies born under 24 weeks gestation have very low survival rate, despite advances in medicine and neonatal technology. While 67% of the cases reviewed by FIMR teams in 2002 and 76% in 2003 were premature (before 37 weeks of gestation), 33% and 43% respectively were considered "pre-viable," or too small and too early to survive.

Maternal Characteristics

FIMR teams review a higher percentage of infant deaths to black mothers than is documented in Michigan's infant mortality. This is due to a combination of factors: some teams are located in high black populated areas, and some teams choose to review deaths of infants to black mothers exclusively.

Table 95
Number and Percent of FIMR Deaths Reviewed by Race / Ethnicity of Mother

Maternal Race / Ethnicity	2002		2003	
	Number	Percent	Number	Percent
White	40	34.5	71	31.7
Black	71	61.2	133	59.4
Hispanic / Latina	3	2.6	7	3.1
Native American	0	0.0	4	1.8
Asian / Pacific Islander	1	0.9	4	1.8
Multi-racial	0	0.0	2	0.9
Unknown	1	0.9	3	1.3
Total	**116**	**100.0**	**224**	**100.0**

While black infant births make up about 18% of all Michigan live births, black infant deaths make up nearly 38% of the infant deaths. Michigan consistently shows a ratio between 2:1 and 3:1 for black infant deaths to white infant deaths, and currently ranks fifth worst among states for overall black infant mortality.[2] As a result, local FIMR communities are conducting analyses of infant deaths by race of the mothers.

Table 96
Number and Percent of FIMR Deaths Reviewed by Age of Mother

Maternal Age Group	2002		2003	
	Number	Percent	Number	Percent
Under 15 years	0	0.0	2	0.9
15 to 19 years	25	21.6	42	18.8
20 to 24 years	38	32.8	64	28.6
25 to 29 years	18	15.5	51	22.8
30 to 34 years	22	19.0	37	16.5
35 to 39 years	11	9.5	16	7.1
40 years and older	1	0.9	8	3.6
Unknown	1	0.9	4	1.8
Total	**116**	**100.0**	**224**	**100.0**

Table 97
Number and Percent of FIMR Deaths Reviewed by Maternal Risk Factors
(N=116 in 2002 and N=224 in 2003)

Factors	2002		2003	
	Number	Percent	Number	Percent
First Pregnancy <18 Years Old	39	33.6	64	28.6
< 12th Grade Education	36	31.0	71	31.7
Unintended Pregnancy	48	41.4	101	45.1

[2] March of Dimes, PeriStats, 1998-2000.

Twenty percent of the infant deaths reviewed were to teenage mothers (age 19 and under). For nearly one of three cases reviewed, the mother having the loss began childbearing as a teen. While teen pregnancy and infant deaths associated with teen pregnancy represent a significant medical and social problem, the consequences of early childbearing go well beyond the teen years alone. Education may be interrupted or suspended altogether, seen again in the trend of one out of three mothers experiencing a loss having less than a high school education.

In Michigan, approximately 40% of all births are unintended (mistimed or unwanted), and approximately 65% of Medicaid births are unintended.[3] While there is no direct association with infant death, women who have unwanted or mistimed pregnancies are more likely to be poorly committed to the outcome. They are also less likely to seek adequate prenatal care and change risky behaviors, including substance use and abuse.

Prenatal Care

FIMR teams review a higher percentage of infant deaths to mothers who enter prenatal care late than is documented in Michigan's infant mortality. This is possibly due to some teams located in urban areas that tend to have high-risk populations who are more likely to have issues with medical access and compliance.

Table 98
Number and Percent of FIMR Deaths Reviewed by Entrance to Prenatal Care

Week of Entry to Care	2002		2003	
	Number	Percent	Number	Percent
12 weeks gestation and earlier	58	50.0	112	50.0
Greater than 12 weeks gestation	34	29.3	59	26.3
Unknown	24	20.7	53	23.7
Total	**116**	**100.0**	**224**	**100.0**

Table 99
Number and Percent of FIMR Deaths Reviewed by Adequacy of Prenatal Care

Kessner's Index	2002		2003	
	Number	Percent	Number	Percent
Adequate	43	37.1	83	37.1
Intermediate	6	5.2	18	8.0
Inadequate	15	12.9	30	13.4
Unknown	52	44.8	93	41.5
Total	**116**	**100.0**	**224**	**100.0**

[3] Michigan Pregnancy Risk Assessment Monitoring System (PRAMS) annual report, 2001.

Local review teams remain concerned about the number of infant deaths associated with less than adequate prenatal care, regardless of the cause of death. In 2002 and 2003 case reviews, 50% of moms entered care during their first trimester (the first 12 weeks of pregnancy), and fewer than one in three moms received "adequate" prenatal care (taking into account the necessary number of prenatal care visits based on Kessner's Index).

Mortality in the Neonatal Period

The rise in Michigan infant death rates from 2002 to 2003 is from a rise in death rates during the neonatal period. While Child Death Review does a good job of reviewing infant deaths in the postneonatal period, FIMR provides a real insight into deaths occurring in the neonatal period. Of the total infant deaths that occurred in Michigan in 2003, 69% were in the neonatal period. And 75% of these neonatal deaths were associated with being born too small and too soon.

In 2002, there were 15,510 preterm births in Michigan, representing 12% of all live births. Between 1992 and 2002, the rate for infants born preterm in Michigan increased by more than 10%. There were 55 neonatal deaths reviewed by FIMR teams in 2002 from perinatal conditions associated with premature birth, and 124 premature neonatal deaths reviewed in 2003. FIMR teams collect information on multiple factors known to be highly associated with infant deaths due to prematurity.

Table 100
Number and Percent of Premature Neonatal FIMR Deaths Reviewed by Maternal Medical Conditions (N=55 in 2002 and N=124 in 2003)

Medical Condition	2002		2003	
	Number	Percent	Number	Percent
Infection: BV or Chorioamnionitis	25	45.5	68	54.8
Sexually Transmitted Infection	9	16.4	18	14.5
Incompetent Cervix	9	16.4	24	19.4
Previous VIP or SAB	24	43.6	55	44.4
Previous Fetal Loss	9	16.4	11	8.9
Previous Infant Loss	3	5.5	1	0.8
Obesity	20	36.4	33	26.6
Poor Nutrition	6	10.9	16	12.9

Infections, such as bacterial vaginosis (BV) and sexually transmitted infections, are thought to pre-dispose a woman to preterm labor. Other events that may weaken the cervix, such as previous elective abortion, spontaneous miscarriage, previous infant loss or stillbirth have been identified as risk factors for preterm delivery. In the cases of premature infant deaths reviewed by FIMR teams in 2002 and 2003, nearly half of the women had had either a previous voluntary interruption of pregnancy (VIP) or a spontaneous miscarriage (SAB). Previous loss of either a live born or stillborn infant affected about one in seven of the women whose babies died due to prematurity.

Less understood, but clearly present as a risk factor in cases of premature infant deaths reviewed by teams, is the role of maternal obesity and poor nutrition in birth outcome. Nearly one half of women of childbearing age in Michigan are either overweight or obese (BMI > 25). In the cases reviewed by teams for prematurity in 2002 and 2003, one in three moms were obese. Obesity places moms at greater risk for pregnancy complications such as hypertension and pre-eclampsia, diabetes, thromboembolic disease, and increased infection complications possibly due to compromised immune system and hygiene.

Table 101
Number and Percent of Premature Neonatal FIMR Deaths Reviewed by Maternal Substance Use (N=55 in 2002 and N=124 in 2003)

Substance Used	2002		2003	
	Number	Percent	Number	Percent
Smoked during pregnancy	15	27.3	47	37.9
Drank alcohol during pregnancy	8	14.5	18	14.5
Used illicit drugs during pregnancy	8	14.5	28	22.5

In Michigan in 2003, 18% of mothers of infants who were born live and died in the neonatal period reported having smoked tobacco during pregnancy, two percent reported having used alcohol and 25% reported having used illicit drugs. These statistics are from birth certificates and are thought to be extremely under-reported because it is "self-report." It is believed that FIMR teams are able to look at substance use and abuse issues with greater accuracy by combining medical chart abstraction with confidential home interview information. The identification of tobacco and alcohol use during pregnancy appears to be significantly higher with FIMR (two and seven times greater, respectively); however, this could be an artifact of sampling, since only 16% of neonatal Michigan deaths were reviewed by FIMR in 2003.

"I think that a clinic with medical staff trained in substance abuse would have helped me... maybe someone sensitive to this crack addicted mom who has let her guard down. It took everything out of me to admit to someone that I was on drugs, all the time fearful of what the staff is thinking of me, whether I'd be arrested, my other kids taken."

~ 24 year old mom who delivered at 21.5 weeks gestation

Table 102
Number and Percent of Premature Neonatal FIMR Deaths Reviewed by Maternal Psychosocial Risk Factors (N=55 in 2002 and N=124 in 2003)

Psychosocial Risk Factor	2002		2003	
	Number	Percent	Number	Percent
Self pay; medically indigent	3	5.5	13	10.5
Medicaid; managed care	23	41.8	62	50.0
Lack of social support	4	7.3	15	12.1
History of mental illness	7	12.7	10	8.1
Depression or other mental illness during pregnancy or postpartum	9	16.4	16	12.9
Multiple stresses / social chaos	25	45.5	35	28.2
Abuse / harassment	5	9.1	15	12.1

Poverty, stress and lack of social support have been emerging as factors that may play a role in predisposition to pre-term labor, especially for black women. Close to half of the prematurity deaths reviewed by FIMR teams in 2002 and over a quarter of those reviewed in 2003 were identified as having multiple stressors or "social chaos" present in the lives of the moms. In more than half of the cases reviewed, moms either lacked insurance or were on Medicaid. Depression or other mental illness during pregnancy was also a significant risk factor, occurring in one in seven moms in the cases reviewed both in 2002 and in 2003. Also, qualitative data obtained from the mother's perspective during a home interview often provides insights regarding gaps in care and barriers to services that vital statistics cannot.

"Whenever I went for my prenatal care appointment, I was careful to take my husband and we always wore our wedding rings. I didn't want to be seen as just another poor, single black woman on welfare having a baby.."

~ 27 year old married black women whose first baby was born at 24 weeks gestation and died at 2 days old

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Local Initiatives to Prevent Infant Deaths

Racial Disparities

Many local FIMRs have identified that among the stressors affecting moms during pregnancy is a fear or dissatisfaction with the perinatal health care system. In response to these findings, and the unacceptably high black infant mortality rates and continued disparity between black and white infant deaths, multiple communities have hosted workshops and forums to raise awareness and bring about positive changes in the health care system.

Saginaw – The Healthy Start project hosted a series of "Undoing Racism" half-day workshops, inviting prenatal and family health care providers, clinical and support staff.

Genesee – Sponsored a physician/provider dinner with keynote speaker, addressing racial disparities in infant mortality.

Pontiac – Facilitated a training on racial disparities and transcultural nursing for all local health department and clinical nursing staff.

Safe Sleep

Kalamazoo – FIMR team has seen infant suffocation rise to the fourth leading cause of death in their community, with many parents unaware of risk factors and resources for safe infant sleeping environment. Healthy Start and FIMR personnel launched the Kalamazoo Initiative for Safe Sleep campaign (KISS). The campaign includes community baby showers, a media component to raise community awareness, a crib give-a-way project and annual education to providers and professional staff on safe sleep.

Detroit – Lead FIMR personnel partnered with Tomorrow's Child and the Detroit Department of Health and Wellness Promotion to launch a large-scale safe sleep campaign, focusing on getting the delivery hospitals in Detroit on board with unified messages and education to new families on safe sleep. A community safe sleep summit was held in June of 2002, and multiple newspaper articles and other media events have called attention to the preventable deaths in Detroit due to unsafe sleep environments and practices.

Prematurity

Kent – Finding through their FIMR reviews that many African American moms who experienced an infant loss did not have adequate prenatal care, Kent County is developing and raising funds for a Social Marketing campaign urging "Early and Often" prenatal care.

Psychosocial Needs: Assessment and Referral

Genesee – Developed and implemented the Prenatal Risk Assessment Tool (PRAT) for use by physicians to standardize assessment of mom's depression, substance use, domestic violence and multiple other psychosocial stressors in pregnancy.

Genesee, Saginaw, and Oakland – Developed and distributed community and provider resource guides – a "Yellow Pages" for support services and where to go for assistance before, during and after pregnancy.

Saginaw – Recognizing through local FIMR data that nearly 60% of moms who experienced an infant loss smoked tobacco, and 32% of moms were using either alcohol or illegal drugs, Saginaw's Healthy Start program took the lead in establishing a leadership team of 14 individuals who attended the Children's Research Triangle training in September 2002. A comprehensive community approach to substance abuse in pregnancy was developed, using an approach that incorporated Chasnoff's model for: Screening, Assessment, Referral and Treatment (SART). Chasnoff's tool, "4 P's plus," was adopted for screening, trainings were provided to all prenatal care provider sites and linkages were improved with substance abuse treatment and referrals sources.

Community Awareness

Washtenaw – In their early reviews, the FIMR team found that lack of community and provider awareness of the scope of the infant mortality problem was a barrier. FIMR and local public health staff created a display board to draw attention to issues related to infant mortality and have attended multiple community events, including health fairs and the Heritage Festival.

Branch – A rise in the number of infant deaths due to birth defects prompted Branch County to promote community education on the importance of prenatal vitamins and preconceptional intake of folic acid.

Recommendations for Policymakers

These recommendations have been reviewed and supported by the State FIMR Network for further consideration by the Michigan Department of Community Health.

1. Reinvest in outreach – restore outreach funding for public health programs to link women to health services.
   a. Expand indigenous paraprofessionals to identify and provide outreach to pregnant women and women with children under one year of age.
2. Pregnancy prevention and family planning – increase access to pregnancy prevention and family planning services as a primary prevention model.
   a. Address unintended pregnancy through exploration of the submission of a family planning 1115 waiver.
   b. Health education for women of childbearing age that includes information on nutrition, folic acid, and substance abuse.
3. Improve insurance options for adult non-pregnant women – any consideration for expanding health insurance programs should include preconception care for women who are not pregnant and of childbearing age (19-44 years).
4. Coordination of services – the state must assess its own programs, providing a state "mapping" of services that communities can then use to create a seamless system of care for women.
   a. Support the location of Women Infants and Children (WIC) services in complexes with doctor's offices and other centralized services.
5. Expand services that enhance access for high-risk populations:
   a. Increase Federally Qualified Health Centers (FQHCs) in both Detroit and in the outstate region.
   b. Develop and implement standards of care for women's health care services similar to the Early and Periodic Screening Diagnosis and Treatment (EPSDT) model of care for children.
   c. Increase public and private investments in school-based and school-linked health services.
6. Encourage local community planning and collaboration – community planning and collaboration must be supported, developing culturally and geographically appropriate public and private services that are sensitive to the needs of that particular community.
   a. Partner with employers to expand pregnancy and parenting friendly policies in workplaces.

Recommendations for Policymakers Continued...

7. Collect and analyze data for infant mortality and maternal services:
   a. Continue to collect and analyze data from FIMR sites. Target the communities with the highest infant death rates and greatest racial disparities. Consider providing seed monies to new and developing teams. And, continue technical assistance to established review and community action teams.
   b. Implement a data collection system statewide for Maternal Support Services/Infant Support Services (MSS/ISS) that includes consistent assessment of client needs and services provided.
   c. Evaluate the Medicaid data to determine how infant mortality is impacted by barriers to access such as Medicaid reimbursement policies, transportation reimbursement and provider resources/availability.
   d. Collect data for the Maternal Morbidity Review process that focuses on prematurity, low birth weight and infant mortality including chronic diseases and behavioral factors such as the impact of stress and abuse of women of childbearing age and their families.

Recommendations for Parents and Caregivers

- Be aware of the importance of planning pregnancy and optimal spacing between pregnancies.
- Understand the importance of nutrition and folic acid supplements.
- Recognize the role of stress and abuse on pregnancy outcome.
- If you are pregnant, or think you may be pregnant, see your health care provider early and often, and follow their advice.
- Avoid alcohol, tobacco and drugs during pregnancy and in the three months before pregnancy.
- Call your health care provider right away if you experience any warning signs for pre-term labor.
- Value the support of the whole community to care for mothers, pregnant women and families.

Child Deaths
IN MICHIGAN
section ten

APPENDICES

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Appendix B
Actions Taken on Recommendations from Previous Annual Reports

Regarding the Child Death Review Process:

1. Consider a state-level mechanism to assist and support local teams in developing protocols to ensure that they have timely and complete access to all information necessary for an effective review. (from 2nd annual report)
   Update: Michigan Public Health Institute now has an agreement with the Michigan Department of Community Health, Division for Vital Records and Health Statistics, on obtaining death certificates for local CDR Teams. Still, teams often lack needed information, especially medical records and if the child died in another county.

2. Provide training on the child death review process and on child death prevention to other organizations and systems. (from 2nd annual report)
   Update: CDR staff present information on child death review to many state organizations; Child Welfare Institute staff have attended the annual CDR training.

Regarding SIDS and Infant Suffocations:

3. The Michigan Department of Community Health, the Family Independence Agency, Michigan State Police, Chiefs of Police, Michigan Sheriff's Association, Michigan Association of Medical Examiners and Prosecuting Attorneys Association of Michigan should collaborate to ensure statewide utilization of Michigan standards for child death scene investigations using the *State of Michigan Protocols to Determine Cause and Manner of Sudden and Unexplained Child Deaths* as a model. (from 4th annual report; similar recommendation in 2nd annual report)
   Update: As of 7/1/ 2004, Public Act 179 states, in part, "The Department of Community Health shall promulgate rules and regulations under this act to promote consistency and accuracy among county medical examiners and deputy county medical examiners in determining the cause of death under this section. The department may adopt, by reference in its rules, all or any part of the "State of Michigan Protocols to Determine Cause and Manner of Sudden and Unexplained Child Deaths" published by the Michigan Child Death Review program." MDCH is currently convening a multi-disciplinary group to advise them on this law.

4. Develop a statewide campaign on safe infant sleeping environments following the recommendations of the Consumer Product Safety Commission, and include a special focus on babysitters and child care providers. (from 2nd annual report)
   Update: MDCH is currently in collaboration with FIA, Tomorrow's Child, CDR and local community reps to develop a statewide campaign on safe infant sleep.

5. Incorporate SIDS risk reduction and safe infant sleep materials in Michigan's statewide prenatal smoking cessation programs.
   Update: Current state prenatal smoking cessation programs now include safe sleep materials.

6. Encourage local jurisdictions to require that medical examiners and law enforcement officers assigned to investigate child deaths be trained on protocols for investigating child deaths modeled after the *State of Michigan Protocols to Determine Cause and Manner of Sudden and Unexplained Child Deaths.* (from 3rd annual report)
   Update: The Michigan CDR program, with funding from the Governor's Task Force on Children's Justice, held three trainings on child death scene investigation in the spring of 2003. These trainings encouraged the use of the State of Michigan Protocols to Determine Cause and Manner of Sudden and Unexplained Child Deaths. A coordinated approach to investigations was recommended.

7. Expand state efforts to educate parents on safe infant sleep, including an emphasis on the risk of SIDS and suffocation when infants sleep on the same surface with others. (from 3rd annual report)
   Update: Tomorrow's Child has worked on this issue and developed a safe sleep brochure that has been widely distributed.

Appendix B
Actions Taken on Recommendations from Previous Annual Reports

Regarding Child Deaths from Natural Causes:

8. The Michigan Department of Community Health and the Family Independence Agency should support a partnership and the sharing of information between the Michigan Child Death Review Program and the Michigan Asthma Coalition to improve the diagnosis, treatment and prevention of childhood asthma. (from 4th annual report; similar recommendation in 3rd annual report)
   Update: MPHI currently is involved with the Michigan Asthma Coalition. The goal of the partnership is to learn from the asthma deaths that have already occurred to improve treatment and education for parents and physicians.

Regarding Motor Vehicle Crash Deaths:

9. The Michigan Legislature should amend the current graduated licensing law to place limits on the number of teen passengers allowed in vehicles driven by teens with Level Two Intermediate Licenses. This limitation should apply at all times of the day. (from 4th annual report; similar recommendations in 2nd and 3rd annual reports)
   Update: House Bill 4600 was passed by the House on Oct 30, 2003 which addressed this issue; however, the bill was amended to allow written exception permission from the teen drivers' parents. The bill was voted down in the Senate.

10. The Michigan Legislature should amend the Michigan Child Passenger law to:

    a. Require the use of a belt positioner for booster seats to protect children over age four and up to age eight and 80 pounds.

    b. Increase fines and points for those not following the law.

    c. Increase public awareness and education programs.
       Update: House Bill 4200 was introduced and referred to the Transportation Committee on 2/12/03. This bill would require that children between 40-80 lbs. and less than 4'9" in height be seated in a booster seat secured by a safety belt. Senate Bill 996 was introduced and referred to the Transportation Committee on 2/17/04. This bill would increase the fine for seat belt and child safety seat violations from $10 to $80. These bills have been the topic of meetings and hearings, but have not yet been voted upon.

Regarding Fire Deaths:

11. Encourage the Consumer Product Safety Commission to require the furniture manufacturing industry to expand the current fire retardant standards for upholstered furniture beyond commercial aircraft and prisons, to include furniture made for residential use. (from 2nd annual report)
    Update: The CPSC held a public meeting in June 2002 addressing the issue. The CPSC staff will send an updated regulatory options package within the next year to the CPSC. It will contain a revised draft standard and recommendations regarding alternatives to address fire risks association with upholstered furniture. As of 7/04, this was still in debate at the CPSC.

12. The Michigan Department of Community Health and the Michigan State Police should collaborate to develop an awareness campaign on the increased risks of fatal house fires when children play with incendiary devices. (from 4th annual report)
    Update: In February 2001, the Michigan State Police's Teaching, Educating And Mentoring (T.E.A.M.) school liaison program incorporated an additional training module on fire safety. The curriculum, taught in four graduated segments across K-12th grades, specifically addresses the risks and consequences of playing with fire.

Appendix B
Actions Taken on Recommendations from Previous Annual Reports

Regarding Drownings:

13. The Family Independence Agency's Office of Children and Adult Licensing should review current day care licensing guidelines for barriers to pools, hot tubs or open bodies of water at regulated day care homes. (from 4th annual report; similar recommendations in 2nd and 3rd annual reports)
Update: The new draft rules for day care homes state: "R 400.1814b. Water hazards and water activities. Rule 14b. (1) Each licensee/registrant must ensure that barriers exist to prevent children from gaining access to any swimming pool, drainage ditch, well, pond or other body of open water located on or adjacent to the property where the day care home is located. Such barriers must be of a minimum of 4 feet in height and appropriately secured to prevent children from gaining access to such areas. (2) The use of spa pools, hot tubs and fill-and-drain wading pools is prohibited. (3) Hot tubs and spas, whether indoors or outdoors, must be inaccessible to children and have a locked hard cover." Representatives from the CDR State Advisory Team met with the director of Children and Adult Licensing in July 2004 to discuss the role of CDR and make recommendation on the new licensing rules for child care. The rules change process is ongoing.

Regarding Child Abuse and Neglect Deaths:

14. The Michigan Department of Community Health, the Family Independence Agency and the Michigan Department of Education should collaborate in developing a nurse home visitation program targeting low-income first-time mothers based upon the successful "Nurse Family Partnership" model developed by Dr. David Olds. (from the 4th annual report; similar recommendations in the 2nd and 3rd annual reports)
Update: The abovementioned agencies are collaborating with the National Nurse Family Partnership, Inc. to implement a project to help first time parents succeed in Michigan. In FY 2004, four low-income cities were selected to pilot the NFP program. A team of four nurses and a supervisor from the three new cities attended the first phase of specialized training in Denver, CO in January 2004 and have begun providing services.

15. Ensure that the Family Independence Agency's Children's Protective Services worker training emphasizes assessment for medical neglect. (from 2nd annual report)
Update: A training session in medical issues in child abuse cases was developed and provided in March of 2004. In addition, Medical Resource Services offers case specific support through consultation with field staff, and reviews of medical records in order to provide in-depth explanations of medical findings relevant to child abuse and neglect cases.

16. The Family Independence Agency should increase and improve the resources available to educate and support the medical community and other mandated reporters to understand, identify and report suspected child abuse and/or neglect. (from 4th annual report)
Update: A guide for mandated reporters was recently released by DHS. It is to serve as a tool to identify, educate and encourage reporting by mandated reporters, as well as outline the civil duty and process for reporting. Specialized training for the reporting process is currently available through the Medical Services Advisory and Prosecuting Attorneys Association of Michigan.

Regarding Suicides:

17. The Michigan Surgeon General should lead the effort to develop an Adolescent Suicide Prevention and Services strategic plan in accordance with the U.S. Surgeon General's Call to Action for Suicide Prevention. (from 4th annual report; similar recommendation in the 3rd annual report)
Update: The Michigan Suicide Prevention Coalition has been convened, consisting of representatives of the Child Death Review program, the Michigan Department of Community Health, the Department of Education and various other state and local organizations. A draft plan has been drawn up and was recently presented to the state Mental Health Commission.

Appendix C
Local Child Death Review Team Coordinators, 2002–2003

County	Coordinator(s)	Agency
Alcona	Doug Ellinger, Sheriff	Alcona County Sheriff's Department
Alger	Patricia Webster, Nursing Administrator	LMAS District Health Department
Allegan	Cathy L. Weirick, Executive Director	Allegan County CA/N Council
Alpena	Cindy Shackleton	Alpena County DHS
Antrim	Bob Lewis, Services Supervisor	Antrim County DHS
Arenac	Brian Millikin	Arenac County DHS
Baraga-Houghton-Keweenaw	Dr. Gail Shebuski, Health Officer/ Medical Director	Western UP Health Department
Barry	Dr. Jeff Chapman, Medical Examiner	Barry County Medical Examiner
	Ann Wilson	Barry County Medical Examiner's Office
Bay	Dominic Wright, Victim's Advocate	Bay County Prosecutor's Office
Benzie	Jenifer Murray, Personal Health Director	Benzie-Leelanau District Health Dept
Berrien	Margaret Penninger, Assistant Prosecutor	Berrien County Prosecutor's Office
Branch	Kim McFellin	Branch County DHS
Calhoun	Renay Montgomery	Calhoun County Health Department
Cass	Ruth Andrews, Director	Woodlands Behavioral HC Network
Charlevoix-Emmet	Rhonda Buchanan	Charlevoix Emmett DHS
	Jenny Deegan	Charlevoix Prosecutor's Office
Cheboygan	Dr. Howard Otto, Medical Examiner	Cheboygan Co Medical Examiners Office
Chippewa	Vicki Schuurhuis, Clinical Director, OB/ Nursery	War Memorial Hospital
Clare	Kathy Kent, Nursing Supervisor	Central Michigan District Health Dept
Clinton	Mary Pino, Chief Assistant Prosecutor	Clinton County Prosecutor's Office
Crawford	Amelia Afsari, Epidemiologist	District Health Department #10
Delta	Renee Barron	Delta-Menominee District Health Dept
Dickinson-Iron	Carol Thornton	Dickinson-Iron County DHS
Eaton	Linda Potter, RN	Barry-Eaton District Health Department
Genesee	Dr. Gary Johnson, Medical Director	Genesee County Health Department
	Pamala Watkins, Medical Examiner Investigator	Genesee County Health Department
Gladwin	Robert Adams, Director	Gladwin County DHS
Gogebic	Dr. Charles Iknayan, Medical Examiner	Grandview Hospital
Grand Traverse	Deanna Kelly	Grand Traverse County Health Dept
	Mary Merwin	GT County Multi-purpose Collaborative
Hillsdale	Valerie White, Assistant Prosecutor	Hillsdale County Prosecutor's Office
Huron	Mark Gaertner, Prosecuting Attorney	Huron County Prosecutor's Office
	Elizabeth Weisenbach, Assistant Prosecutor	Huron County Prosecutor's Office
Ingham	Dr. Dean Sienko, Medical Examiner	Ingham County Health Department
Ionia	Tim Click, Children's Services	Ionia/Montcalm County DHS
Iosco	Carla Grezeszak, Family Division Administrator	Iosco County Family Court
Isabella	Mari Pat Terpening, Personal Health Svcs Supervisor	Central Michigan District Health Dept

Appendix C
Local Child Death Review Team Coordinators, 2002–2003

Jackson	Jill Glair	Jackson County Health Department
Kalamazoo	Joni Idzkowski, Personal Health Services Supervisor	Kalamazoo Human Services Department
Kalkaska	Amelia Afsari, Epidemiologist	District Health Department #10
Kent	Tracy Cyrus, Child Protection Team	DeVos Children's Hospital
	Carmen Perez	Kent County Health Department
Lake	Amelia Afsari, Epidemiologist	District Health Department #10
Lapeer	D/Sgt. Nancy Stimson	Lapeer County Sheriff's Department
	Gerald Redman, Acting Program Manager	Lapeer County DHS
Leelanau	Sara Brubaker, Prosecuting Attorney	Leelanau County Prosecutor's Office
	Laurie laCross, Victims Advocate	Leelanau County Prosecutor's Office
Lenawee	Larry W. Stephens, Health Officer	Lenawee County Health Department
Livingston	Dr. Stan Reedy, Medical Director	Livingston County Health Department
	Elaine Brown, Personal and Prevention Health Services	Livingston County Health Department
Luce	Dr. James Terrian, Medical Examiner/ Director	LMAS District Health Department
Mackinac	Sgt. Mark Wilk	St. Ignace Police Department
Macomb	Dr. Kevin Lokar, Medical Director	Macomb County Health Department
	Angelo Nicholas, Director; Brenda Piekarski	Macomb County DHS
Manistee	Ford Stone, Chief Prosecutor	Manistee County Prosecutor's Office
Marquette	Diane Curry, Health Educator	Marquette County Health Department
Mason	Richard Trier, Service Manager	Mason County DHS
Mecosta	Amelia Afsari, Epidemiologist	District Health Department #10
	Kevin Courtney, Director	Big Rapids Dept of Public Safety
Menominee	Renee Barron	Delta-Menominee District Health Dept
Midland	Dr. Dennis Wagner, Deputy Medical Examiner	Mid-Michigan Regional Medical Center
	Andrea Muladore, ACSW	Mid-Michigan Regional Medical Center
Missaukee-Wexford	Dave VanHouten, Children's Services Supervisor	Missaukee-Wexford DHS
Monroe	Sandie Pierce	Monroe CMH Authority
Montcalm-Gratiot	Jamie Lovelace, Children's Services Supervisor	Ionia Montcalm District DHS
	Bonnie Ayers	Mid-Michigan District Health Dept
Montmorency	Denise Benson, Services Supervisor	Montmorency County DHS
Muskegon	Joyce L. deJong, DO, Chief ME	Muskegon County Health Department
	Roberta Skinner, Records Office	Muskegon County Health Department
Newaygo	Richard W. Peters, MD	Mercy General Health Partners
	Amelia Afsari, Epidemiologist	District Health Department #10
	Kevin Sweeney	Michigan State Police

Appendix C
Local Child Death Review Team Coordinators, 2002–2003

Oceana	Amelia Afsari, Epidemiologist	District Health Department #10
	Rahel Sollner, CPS Supervisor	Oceana County DHS
Ogemaw	Dr. James Hall, Pathologist/ME	HistoDiagnostic
Ontonagon	Sue Gilbault, Outreach Coordinator	Barba Kettle Gundlach Shelter
	Janet Holmstrom	Ontonagon County DHS
Osceola	Kaye Frederick	Osceola County Probate Court
	Becky Johnson-Himes	Central Michigan District Health Dept
	MarJean Farr, CPS Supervisor	Osceola County DHS
Oscoda	Joan Fox, Services Supervisor	Oscoda County DHS
Otsego	Kevin Hessselink, Prosecuting Attorney	Otsego County Prosecutor's Office
Ottawa	Tom Perna, CPS Supervisor	Ottawa County DHS
Presque Isle	John Keller	Alpena County DHS
Roscommon	Cynde Kochensparger, Nursing Supervisor	Central Michigan District Health Dept
Saginaw	Kristan Outwater, MD	Partners in Pediatrics
	Debbie Tubb, ME Investigator	Saginaw County Health Department
St. Clair	Amy Smith, Planning Officer	Community Mental Health
St. Joseph	Elizabeth O'Dell, Collaborative Coordinator	St. Joseph Co Human Svcs Commission
Sanilac	Dennis Smallwood, DO, Medical Examiner/Director	Sanilac County Health Department
Schoolcraft	Amy Powers, RN	LMAS Dist Health Department
Shiawassee	Cindy Eberhard, CPS Supervisor	Shiawassee County DHS
	Rose Mary Asman, Pers Health Services Director	Shiawassee County Health Dept
Tuscola	Dennis Smallwood, DO, Medical Examiner/Director	Tuscola County Health Department
Van Buren	Trooper Paula Doan	Michigan State Police
	Sandy Nicholas	Van Buren/Cass District Health Dept
Washtenaw	Susan Gialanella	Washtenaw County Human Services
Wayne	Pat Soares	Wayne County Health Department
	Dr. Charles Barone	Henry Ford Hospital
	Teresa Marshall, Child and Family Services	Wayne County DHS

Appendix D
Number of Cases Reviewed by CDR Teams by County

County	Number of Reviews in 2002	Number of Reviews in 2003	Number of Reviews 1995–2003
Alcona	2	1	4
Alger	0	2	5
Allegan	12	9	57
Alpena	0	0	10
Antrim	0	0	0
Arenac	2	1	6
Baraga	0	0	0
Barry	10	6	54
Bay	2	2	20
Benzie	0	1	1
Berrien	33	41	278
Branch	6	6	35
Calhoun	4	0	142
Cass	9	9	47
Charlevoix	6	0	8
Cheboygan	0	0	4
Chippewa	3	5	24
Clare	0	3	8
Clinton	18	10	53
Crawford	0	0	18
Delta	4	0	11
Dickinson	4	2	9
Eaton	9	4	68
Emmet	4	0	7
Genesee	21	18	96
Gladwin	2	5	23
Gogebic	2	0	2
Grand Traverse	0	5	6
Gratiot	6	5	31
Hillsdale	2	6	25
Houghton	0	0	0
Huron	0	5	18
Ingham	10	16	64
Ionia	12	6	38
Iosco	10	2	18
Iron	0	2	2
Isabella	7	13	47
Jackson	13	10	62
Kalamazoo	28	23	132
Kalkaska	0	0	4
Kent	85	81	440

Appendix D
Number of Cases Reviewed by CDR Teams by County

Keweenaw	0	0	0
Lake	0	2	11
Lapeer	17	13	73
Leelanau	0	5	7
Lenawee	1	9	50
Livingston	23	15	104
Luce	2	1	13
Mackinac	4	0	16
Macomb	31	21	157
Manistee	0	0	5
Marquette	0	0	10
Mason	0	0	16
Mecosta	6	5	61
Menominee	0	4	11
Midland	6	8	33
Missaukee	5	4	14
Monroe	26	14	68
Montcalm	7	17	87
Montmorency	3	0	3
Muskegon	10	9	88
Newaygo	10	6	39
Oakland	55	43	259
Oceana	10	4	40
Ogemaw	0	0	0
Ontonagon	1	1	2
Osceola	1	2	19
Oscoda	0	0	0
Ostego	4	0	14
Ottawa	24	12	103
Presque Isle	0	0	2
Roscommon	2	0	13
Saginaw	27	30	162
St. Clair	20	33	203
St. Joseph	23	11	75
Sanilac	1	1	11
Schoolcraft	1	1	2
Shiawassee	17	13	77
Tuscola	9	5	39
Van Buren	14	13	71
Washtenaw	11	14	75
Wayne	194	209	902
Wexford	8	4	34
Michigan	**899**	**828**	**4,846**

Appendix E
Total Number of Deaths Among Michigan Residents, Ages 0-18, by County of Residence and Age Group, 2002

County of Residence	Age Group by Years					Total
	Under 1	1-4	5-9	10-14	15-18	
Alcona	1	0	0	1	1	3
Alger	1	1	0	0	0	2
Allegan	9	0	3	3	7	22
Alpena	1	0	0	0	1	2
Antrim	1	0	0	0	0	1
Arenac	1	0	0	1	2	4
Baraga	1	0	0	0	0	1
Barry	1	0	0	4	1	6
Bay	7	0	1	2	2	12
Benzie	0	0	0	0	0	0
Berrien	18	2	1	1	8	30
Branch	4	1	1	0	2	8
Calhoun	15	3	4	1	6	29
Cass	7	0	2	1	2	12
Charlevoix	2	1	0	0	2	5
Cheboygan	1	0	1	1	3	6
Chippewa	2	0	0	0	2	4
Clare	1	1	1	0	0	3
Clinton	5	3	0	3	3	14
Crawford	2	2	1	0	0	5
Delta	0	0	1	0	2	3
Dickinson	0	0	0	1	0	1
Eaton	8	3	0	1	5	17
Emmet	3	0	1	1	0	5
Genesee	81	10	6	6	10	113
Gladwin	3	0	0	0	2	5
Gogebic	0	0	0	0	0	0
Grand Traverse	6	1	0	0	1	8
Gratiot	3	0	0	0	0	3
Hillsdale	2	0	0	2	1	5
Houghton	3	1	0	1	2	7
Huron	2	1	0	0	0	3
Ingham	24	4	3	2	3	36
Ionia	6	0	0	0	1	7
Iosco	2	1	0	2	3	8
Iron	0	0	0	0	1	1
Isabella	7	0	1	1	2	11
Jackson	10	1	0	4	7	22
Kalamazoo	35	7	3	5	7	57
Kalkaska	3	0	0	1	0	4
Kent	75	6	4	12	25	122
Keweenaw	1	0	0	0	0	1

Appendix E
Total Number of Deaths Among Michigan Residents, Ages 0-18, by County of Residence and Age Group, 2002

Lake	0	0	0	0	0	0
Lapeer	6	4	3	5	4	22
Leelanau	2	0	0	0	1	3
Lenawee	3	0	0	0	2	5
Livingston	6	3	1	0	7	17
Luce	0	0	0	0	2	2
Mackinac	0	0	0	0	1	3
Macomb	53	5	8	6	23	95
Manistee	2	0	1	3	1	7
Marquette	5	2	0	0	2	9
Mason	1	0	1	0	1	3
Mecosta	4	0	2	4	1	11
Menominee	2	0	0	0	2	4
Midland	7	2	0	1	2	12
Missaukee	0	2	0	0	2	4
Monroe	16	4	1	3	5	29
Montcalm	6	0	0	0	2	8
Montmorency	0	0	0	1	0	1
Muskegon	14	2	0	4	6	26
Newaygo	3	2	0	0	5	10
Oakland	95	13	8	16	21	153
Oceana	4	1	0	0	3	8
Ogemaw	0	0	0	1	1	2
Ontonagon	0	0	0	0	0	0
Osceola	2	0	0	1	1	4
Oscoda	1	0	0	0	3	4
Ostego	1	0	1	0	2	4
Ottawa	23	4	6	4	8	45
Presque Isle	1	0	0	0	0	1
Roscommon	2	0	0	0	0	2
Saginaw	24	3	6	0	10	43
St. Clair	13	2	1	2	4	22
St. Joseph	7	2	0	1	3	13
Sanilac	1	1	0	0	1	3
Schoolcraft	0	0	0	0	2	2
Shiawassee	12	0	0	2	4	18
Tuscola	9	0	2	0	4	15
Van Buren	5	1	1	1	5	13
Washtenaw	25	3	4	8	6	46
Wayne	343	46	40	38	76	543
Wexford	2	0	0	0	1	3
Michigan	**1,054**	**151**	**120**	**160**	**338**	**1,823**

Data Source: Michigan Residents Death File, Division for Vital Records and Health Statistics, Office of the Registrar, Michigan Department of Community Health

Appendix F
Total Number of Deaths Among Michigan Residents, Ages 0-18, by County of Residence and Age Group, 2003

County of Residence	Age Group by Years					Total
	Under 1	1-4	5-9	10-14	15-18	
Alcona	4	0	0	1	0	5
Alger	2	0	0	0	0	2
Allegan	14	0	1	1	3	19
Alpena	0	0	0	0	0	0
Antrim	0	0	0	0	1	1
Arenac	2	0	0	0	2	4
Baraga	0	0	0	0	2	2
Barry	4	1	0	2	3	10
Bay	8	1	0	1	3	13
Benzie	4	0	0	1	1	6
Berrien	19	1	1	6	6	33
Branch	5	3	0	3	2	13
Calhoun	16	2	0	1	4	23
Cass	4	0	1	2	0	7
Charlevoix	1	1	0	0	0	2
Cheboygan	2	0	1	0	0	3
Chippewa	3	0	0	0	1	4
Clare	7	1	1	2	0	11
Clinton	9	0	0	1	2	12
Crawford	2	0	0	0	0	2
Delta	7	1	0	0	1	9
Dickinson	1	0	0	0	1	2
Eaton	6	2	0	3	5	16
Emmet	2	0	0	1	1	4
Genesee	71	6	8	7	21	113
Gladwin	2	0	0	0	1	3
Gogebic	0	0	0	0	1	1
Grand Traverse	4	1	1	0	0	6
Gratiot	2	0	1	1	1	5
Hillsdale	4	1	1	2	0	8
Houghton	3	0	0	0	2	5
Huron	0	0	0	0	2	2
Ingham	25	6	1	3	6	41
Ionia	5	1	1	0	5	12
Iosco	0	0	0	0	1	1
Iron	0	0	0	0	2	2
Isabella	7	0	0	1	4	12
Jackson	20	0	7	4	8	39
Kalamazoo	26	2	4	4	7	43
Kalkaska	2	0	0	0	0	2
Kent	88	7	6	12	18	131
Keweenaw	0	0	0	0	0	0

Appendix F
Total Number of Deaths Among Michigan Residents, Ages 0-18, by County of Residence and Age Group, 2003

Lake	3	0	0	0	0	3
Lapeer	6	4	0	1	2	13
Leelanau	4	0	0	0	0	4
Lenawee	5	1	2	2	2	12
Livingston	16	0	0	4	4	24
Luce	1	0	0	0	0	1
Mackinac	1	0	0	0	0	1
Macomb	59	9	7	10	20	105
Manistee	6	0	0	0	0	6
Marquette	1	1	1	0	1	4
Mason	3	0	0	1	0	4
Mecosta	3	1	0	0	2	6
Menominee	0	1	0	0	1	2
Midland	4	1	2	1	5	13
Missaukee	3	0	0	0	3	6
Monroe	3	1	1	2	3	10
Montcalm	10	1	1	2	5	19
Montmorency	0	0	0	0	0	0
Muskegon	25	4	1	4	5	39
Newaygo	2	1	1	1	0	5
Oakland	106	16	14	9	23	168
Oceana	2	0	1	0	1	4
Ogemaw	0	0	0	0	0	0
Ontonagon	0	0	0	1	0	1
Osceola	2	2	1	0	2	7
Oscoda	1	0	0	0	0	1
Ostego	0	1	0	0	1	2
Ottawa	22	2	2	4	5	35
Presque Isle	1	0	0	0	0	1
Roscommon	1	0	1	0	0	2
Saginaw	24	3	4	3	6	40
St. Clair	16	4	3	4	7	34
St. Joseph	6	3	0	3	4	16
Sanilac	2	1	1	1	0	5
Schoolcraft	0	1	0	0	0	1
Shiawassee	6	0	0	4	1	11
Tuscola	4	4	0	0	3	11
Van Buren	6	3	1	2	2	14
Washtenaw	27	3	4	3	3	40
Wayne	349	39	29	40	74	531
Wexford	1	0	0	0	0	1
Michigan	**1,112**	**144**	**112**	**161**	**302**	**1,831**

Data Source: Michigan Residents Death File, Division for Vital Records and Health Statistics, Office of the Registrar, Michigan Department of Community Health

Appendix G
Total Number of Deaths Among Michigan Residents, Ages 0-18, by County of Residence and Year of Death, 1994-2003

County of Residence	Year of Death										2003 Population, Ages 0-18	2003 Rate per 100,000 Population
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003		
Alcona	2	1	0	2	0	0	2	0	3	5	2,116	**
Alger	1	1	2	2	2	1	1	2	2	2	1,940	**
Allegan	21	19	23	16	29	19	17	21	22	19	31,267	60.8
Alpena	2	3	7	4	5	14	4	4	2	0	7,242	**
Antrim	5	4	6	7	0	2	3	3	1	1	5,665	**
Arenac	3	2	2	1	5	0	3	2	4	4	3,930	**
Baraga	2	2	1	3	1	1	1	0	1	2	1,988	**
Barry	10	9	6	15	14	14	11	13	6	10	15,723	63.6
Bay	15	23	21	14	14	13	15	21	12	13	27,108	48.0
Benzie	3	5	2	3	0	2	1	1	0	6	3,951	**
Berrien	43	47	40	46	32	43	37	37	30	33	42,960	76.8
Branch	9	6	9	6	9	9	6	12	8	13	11,693	111.2
Calhoun	26	25	25	47	22	25	29	40	29	23	37,114	62.0
Cass	15	11	9	11	11	5	11	4	12	7	12,914	**
Charlevoix	4	7	8	6	6	5	4	3	5	2	6,830	**
Cheboygan	5	6	3	6	6	2	5	4	6	3	6,394	**
Chippewa	7	9	5	6	4	3	7	7	4	4	8,237	**
Clare	8	5	7	6	5	7	6	1	3	11	7,711	142.7
Clinton	7	11	4	11	8	8	10	8	14	12	18,346	65.4
Crawford	3	4	4	1	1	3	5	3	5	2	3,463	**
Delta	12	6	3	7	3	2	9	8	3	9	8,978	**
Dickinson	4	3	3	3	5	3	2	4	1	2	6,659	**
Eaton	17	14	21	5	14	13	15	7	17	16	27,431	58.3
Emmet	2	4	2	6	2	6	6	2	5	4	8,111	**
Genesee	148	122	139	138	122	119	117	105	113	113	123,879	91.2
Gladwin	4	10	6	4	6	7	2	5	5	3	6,249	**
Gogebic	2	3	1	8	3	3	2	1	0	1	3,365	**
Grand Traverse	8	8	13	11	12	11	11	13	8	6	20,183	**
Gratiot	10	11	9	7	6	7	6	6	3	5	10,239	**
Hillsdale	19	9	7	14	8	13	12	9	5	8	12,488	**
Houghton	4	6	3	7	5	7	2	1	7	5	8,331	**
Huron	7	6	7	4	8	5	10	6	3	2	8,355	**
Ingham	63	50	50	42	46	41	50	43	36	41	71,232	57.6
Ionia	11	9	12	13	4	7	18	16	7	12	16,944	70.8
Iosco	8	5	2	1	3	1	2	6	8	1	5,885	**
Iron	0	3	0	0	4	2	3	0	1	2	2,533	**
Isabella	13	11	8	7	13	6	7	10	11	12	14,425	83.2
Jackson	36	25	30	32	41	36	31	32	22	39	42,239	92.3
Kalamazoo	32	41	40	44	58	28	44	50	57	43	61,725	69.7
Kalkaska	4	2	5	4	3	3	3	1	4	2	4,413	**
Kent	136	120	129	98	106	119	125	119	122	131	172,084	76.1

Appendix G
Total Number of Deaths Among Michigan Residents, Ages 0-18, by County of Residence and Year of Death, 1994-2003

Keweenaw	0	0	1	0	0	0	0	0	1	0	477	**
Lake	5	3	3	4	2	1	3	0	0	3	2,707	**
Lapeer	8	9	13	24	19	18	14	12	22	13	24,790	52.4
Leelanau	3	1	3	1	1	1	4	0	3	4	5,112	**
Lenawee	17	18	12	18	20	23	15	16	5	12	26,166	45.9
Livingston	13	13	25	15	23	27	18	16	17	24	47,658	50.4
Luce	0	0	2	3	0	1	2	0	2	1	1,417	**
Mackinac	1	1	5	3	0	1	3	0	3	1	2,442	**
Macomb	102	113	109	103	101	94	104	104	95	105	201,354	52.1
Manistee	1	5	5	2	5	4	0	3	7	6	5,662	**
Marquette	14	12	10	12	9	7	3	9	9	4	13,824	**
Mason	3	4	6	8	6	6	7	9	3	4	6,839	**
Mecosta	12	4	5	6	14	4	8	7	11	6	9,992	**
Menominee	6	5	4	2	4	2	6	5	4	2	5,903	**
Midland	22	10	15	15	16	20	8	11	12	13	22,522	57.7
Missaukee	1	2	3	3	2	2	3	1	4	6	4,001	**
Monroe	26	22	29	25	18	10	16	27	29	10	40,256	24.8
Montcalm	10	13	11	12	18	24	12	13	8	19	17,016	111.7
Montmorency	3	1	1	1	0	1	0	1	1	0	2,079	**
Muskegon	43	37	37	39	39	46	23	43	26	39	48,387	80.6
Newaygo	12	9	9	12	8	6	6	7	10	5	14,213	**
Oakland	177	180	148	175	168	147	180	153	153	168	310,836	54.0
Oceana	4	5	5	4	7	2	7	6	8	4	7,802	**
Ogemaw	4	6	7	3	9	2	5	2	2	0	5,055	**
Ontonagon	0	1	1	0	1	0	0	0	0	1	1,455	**
Osceola	2	2	4	5	9	6	7	6	4	7	6,298	**
Oscoda	3	4	1	1	4	1	5	1	4	1	2,148	**
Ostego	3	2	6	5	3	4	5	3	4	2	6,334	**
Ottawa	38	40	39	31	44	39	45	48	45	35	72,492	48.3
Presque Isle	0	7	0	0	2	4	5	4	1	1	2,930	**
Roscommon	2	4	4	4	5	7	2	3	2	2	5,258	**
Saginaw	51	48	49	51	47	43	43	38	43	40	56,948	70.2
St. Clair	39	20	32	32	15	29	26	27	22	34	44,997	75.6
St. Joseph	12	18	11	10	13	8	11	20	13	16	17,548	91.2
Sanilac	16	13	7	3	7	10	11	8	3	5	11,830	**
Schoolcraft	1	2	3	0	4	0	1	1	2	1	1,978	**
Shiawassee	11	11	10	14	13	6	8	15	18	11	19,424	56.6
Tuscola	21	18	17	17	13	12	15	13	15	11	15,427	71.3
Van Buren	15	19	15	17	25	21	13	17	13	14	22,003	63.6
Washtenaw	43	50	34	39	36	42	51	52	46	40	80,730	49.5
Wayne	726	654	603	581	570	554	536	468	543	531	590,255	90.0
Wexford	7	8	5	4	5	12	8	5	3	1	8,191	**
Michigan	**2,209**	**2,062**	**1,985**	**1,973**	**1,952**	**1,863**	**1,895**	**1,804**	**1,823**	**1,831**	**2,685,096**	**68.2**

** Rates are too small to calculate (<10 cases). Note: Rates based on 20 or fewer deaths may be unstable. Use with caution.

Data Sources: Michigan Residents Death File, Division for Vital Records and Health Statistics, Office of the Registrar, Michigan Department of Community Health

Bridged Vintage 2003 Postcensal File, National Center for Health Statistics

Appendix H
FIMR Contacts

Coordinator(s)	Agency
Ruth Wood	Berrien County Health Department
Kathy Bappert	Family Services Network/Branch-Hillsdale-St Joseph Community Health Agency
Diane Blaske	
Sara Cauffiel	Calhoun County Health Department
Renay Montgomery	
Leslie Lathrop	Genesee County Health Department
Peter Vasilenko	Michigan State University
Louise Bernstein	Jackson County Health Department
Jo Woods	Kalamazoo Human Services Department
Sarah MacDonald	Spectrum Health
Betty Yancey	Oakland County Health Division
Mary Strobe	
Tawnya Simon	Saginaw County Department of Public Health
Debra Damore	
Sharon McAnuff	Washtenaw County Health Department
Marilynn Smyth	Detroit Department of Health and Wellness Promotion
Lynn Kleiman	
Elizabeth Kushman	Intertribal Council of Michigan


Keeping
Kids
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This report is written in memory of all of the children in Michigan who have died. The Michigan Child Death State Advisory Team issues this report with the hope that it will encourage additional efforts, both in local communities and among our state leaders, to keep every child in Michigan safe and healthy.

The Michigan Department of Human Services
Grand Tower Building
235 South Grand Avenue
Lansing, MI 48909
www.michigan.gov/dhs

Michigan Public Health Institute
Child and Adolescent Health Program
2438 Woodlake Circle, Suite 240
Okemos, MI 48664
(517) 324–7330
www.keepingkidsalive.org

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